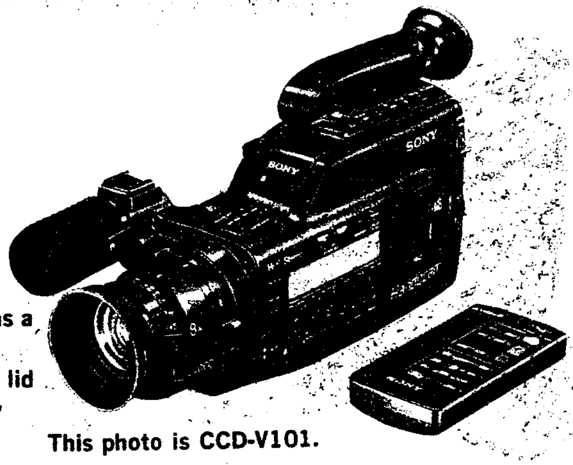
CCD-V101/V700
RMT-501

SERVICE MANUAL

US Model
Canadian Model
CCD-V101
E Model
CCD-V700



Remote commander RMT-501 is available as a unit, but as indivdual parts the battery case lid of commander is only available.

This photo is CCD-V101.

video Hi8 Handycam

U MECHANISM

SPECIFICATIONS

System

Video recording system	Rotary two heads Helical scanning FM system
Audio recording system	Rotary head, FM system (2 channels)
Video signal	NTSC color, EIA standards
Usable cassette	8 mm video format cassettes
Tape speeds	SP mode: Approx. 1.43 mm/sec. (1/16 inch/sec.) LP mode: Approx. 0.72 mm/sec. (1/32 inch/sec.) (playback only)
Recording time	SP mode: 2 hours (E6/P6 – 120)
Playback time	SP mode: 2 hours (E6/P6 – 120) LP mode: 4 hours (E6/P6 – 120)
Fastforward/rewind time	Approx. 7 min. (E6/P6 – 120)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (Black and white)
Lens	Combined 8 × power zoom lens f = 8.5 to 68 mm, F1.4 with macro Filter diameter 46 mm
Auto focus system	TTL
Color temperature	Auto, one push white balance, 3,200 K ☀ 5,800 K
Minimum illumination	3 lux (F1.4)
Illumination range	3 lux to 100,000 lux (0.3 to 9,294 footcandles)
Recommended illumination	More than 100 lux (9.3 footcandles)
Shutter speed control	1/60 to 1/10000 (27 steps)
Aperture control	Auto/manual (16 steps)
Gain control	Auto/manual (8 steps)

Input and output connector

Video input/output	Phono jack, 1 Vp-p, 75 ohms unbalanced, sync negative
S video input/ouput	4-pin mini-DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.286 Vp-p 75 ohms, unbalanced
Audio input	Phono jacks (2: stereo L and R), −7.5 dBs Input impedance more than 47 kilohms
Audio output	Phono jacks (2: stereo L and R), −7.5 dBs at 47 kilohms input impedance Impedance less than 1 kilohm

— continued on next page —

For MECHANICAL ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL III (U MECHANISM)" (9-972-732-11)

Hi8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

RFU DC OUT	Special mini jack, 5 V DC
Headphones jack	Stereo mini jack, 8-ohm impedance
REMOTE Ȼ jack	Stereo mini-mini jack
Microphone jack	External stereo microphone jack: mini jack, −66 dBs low impedance with 2.5 to 3 V DC, output impedance 6.8 kilohms
Microphone power output jack	Special mini jack, 5 V DC

General

Power requirements	On battery mounting surface 6.0 V (battery pack), 7.5 V (AC power adaptor), 9.0 V (alkaline batteries)
Power consumption	6.7 W (camera recording, including the viewfinder)
Installation	Vertically, horizontally
Operating temperature	0° C to 40° C (32° F to 104° F)
Storage temperature	−20° C to 60° C (−4° F to +140° F)
Dimensions	Approx. 105 × 137 × 341 mm (w/h/d) (4¼ × 5½ × 13½ inches)
Weight	Approx. 1.2 kg (2 lb. 10 oz.) excluding the battery and the cassette
Microphone	Electret condensor microphone Uni-directional, stereo type
Accessories supplied	See page 4.

Design and specifications subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

7038

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Introduction

Overview of the CCD-V101

The CCD-V101 Video Hi8 handycam is a compact color video camera/recorder (camcorder). You can use it to shoot the pictures you want and play them back on your television set. It is equipped with a stereo recording system which offers high quality sound to match the Hi8 picture. The full featured camera section offers various camera adjustments to create just the kind of program you wish.

Who this Manual is for

This manual is designed for you. You can use this manual to find exactly the information you need, whether you are familiar with video equipment or not.

How this Manual is Organized

This manual consists of seven sections.
Section 1 explains the preliminary steps necessary to prepare for shooting and playback.
Section 2 explains the very basic techniques of shooting.
Section 3 explains how to playback the tape being shot in section 2.
Section 4 explains additional shooting techniques which will add flavor to your programs.
Section 5 explains the unique shooting techniques including the programmed AE mode and the manual mode.
Section 6 explains the techniques on how-to-edit your video programs.
Section 7 explains other useful information to enjoy the best of your camcorder.

If you have any problem during operation, see the "Trouble Checks" section.

If you are beginner, start with "Recording a picture using automatic adjustments." If you are very familiar with camcorder operation, also refer to "Operating the Camera Section (2) and (3)" for advanced shooting techniques.

How this Manual Works

Refer to the information below to help you follow the instructions in this manual.

- Controls and settings on the camcorder are shown in capital letters:
  ex. Set the POWER switch to CAMERA.
- The letter in an illustration corresponds to the letter in the text:
  ex. (A-1) or (B)
- The step numbers in an illustration correspond to the step numbers in the text.
- Notes and cautions are enclosed with lines.
  ex.

  Note on batteries
  Battery will not last as long in cold places.

Supplied Accessories

The camcorder is packed together with the following units. Check to see that everything is contained in the package.

- Wireless Remote Commander RMT-501 (1)
- Size AA (IEC designation R6) batteries for the Wireless Remote Commander (2)
- Battery pack NP-66H (1)
- AC power adaptor AC-V35 (1)
- Lithium battery CR2025 (1)
- RFU adaptor RFU-90UC (1)
- A/V connecting cable (3 phono to 3 phono) (1)
- Video cable with S video connectors (4-pin mini DIN to 4-pin mini DIN) (1)
- Cassette tape (1)
- Shoulder strap (1)
- Jack covers* (1 set)
- Lens cap*

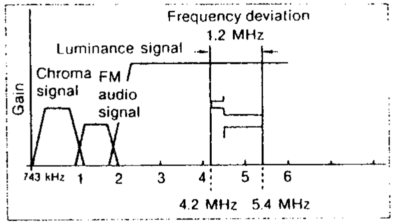
Item with an asterisk (*) is attached to the unit.

SECTION 1
GENERAL

This section is extracted from instraction of CCD-V101 manual.

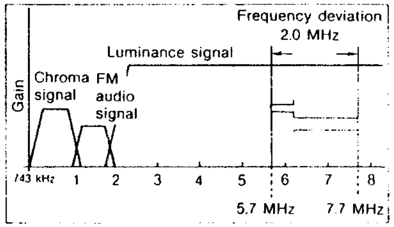
(A-1)

Frequency allocation of the standard 8 mm video system



(A-2)

Frequency allocation of the Hi8 video system



Technical Information

Hi8 (High Eight) Video System

The 8 mm video system employs a metal powder tape. This means the video camera recorder is capable of recording a large amount of information and enhances picture quality. Taking advantage of the 8 mm video system, the Hi8 video system has been developed. The main characteristics of the Hi8 video system are as follows:

Super High Quality Picture

(A-1), (A-2)

The information capacity is a key element for picture improvement. It can be increased by shifting up the FM carrier frequency range. In the Hi8 video system, the FM carrier frequency range of the luminance signal is shifted up to 5.7-7.7 MHz. This is higher than the 4.2-5.4 MHz range of the standard 8 mm video system. Thanks to this, the horizontal resolution is improved to more than 400 lines.

Use of High Grade Tape to Match the Hi8 Video System

Metal evaporated tape is ideal for video systems because it has large magnetic energy that allows for high-density recording. The Hi8 video camera recorder uses such high-grade tape for the Hi8 video system, covering a wide frequency range, to achieve a high-quality video signal for recording/playback.

S VIDEO (Separate Luminance/Chrominance Signal) Input/Output Connectors

Conventionally, video equipment exchanges the composite video signal containing the luminance (Y) signal and the chrominance (C) signal mixed. The composite video signal is liable to produce interference resulting in picture quality loss. On the contrary, an S VIDEO connector transmits or receives the video signal separated into the luminance signal and the chroma signal. Flickers and color blur in the picture are minimized with the separated video signal, and sharpness is enhanced to such an extent that hair and fine stripes are clearly visible. The S VIDEO connector also assures an excellent editing quality with minimum picture quality loss.

Compatibility with Conventional Video Camera Recorders

A high-quality picture can be recorded and played back on a tape for the Hi8 video system.

Recording with this unit

Hi8 tape

MODE SET menu " Hi8 " to "AUTO" → Tape recorded in the Hi8 video system

MODE SET menu " Hi8 " to "OFF" → Tape recorded in the standard 8 mm video system

Standard 8 mm tape

Regardless of the " Hi8 " setting in the MODE SET menu → The recorded in the standard 8 mm video system

Playback with this unit

Tape recorded in the Hi8 video system

Tape recorded in the standard 8 mm video system

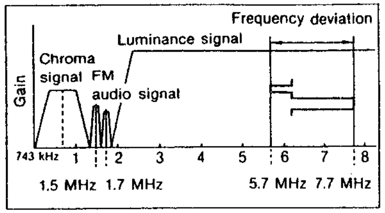
→ The recording mode is selected automatically

- A tape recorded in the Hi8 video system cannot be played back with an conventional 8 mm video camera recorder.
- A standard 8 mm tape cannot be recorded in the Hi8 video system.
- A tape for the Hi8 video system cannot be recorded and played back in the Hi8 video system with a conventional video camera recorder.
- The recording tape speeds in the Hi8 video system are compatible with the conventional 8 mm format.
  Recording/playback time is 2 hours using a E6-120/P6-120 tape or the equivalent.

Cassette used	With this unit		
	Recording		Playback
	Hi8	Normal	
Standard 8 mm tape	No	Yes	Yes
Hi8 tape	Yes	Yes	Yes

(A-3)

Frequency allocation of the hi-fi system

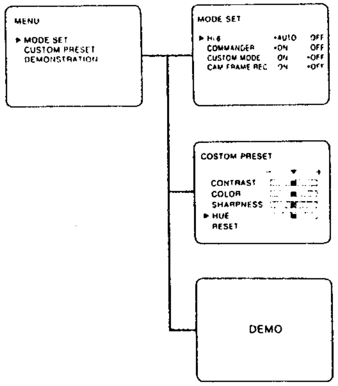


Hi-Fi Stereo System

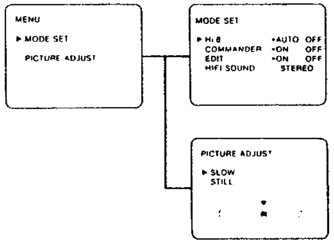
On the 8 mm video standard track the sound is recorded/played back in AFM hi-fi monaural. On this camcorder, an additional AFM hi-fi stereo sound can be recorded on the standard track.
The AFM hi-fi stereo sound is recorded as L+R on the 1.5 MHz carrier and L−R on the 1.7 MHz carrier in FM as illustrated. **(A-3)** This method was adopted to maintain compatibility with the conventional AFM hi-fi monaural sound.
When playing back the tape recorded in this hi-fi stereo system, a matrix circuit is used to produce the L and R stereo sounds separately.
When a conventional AFM hi-fi monaural model is used to playback a tape recorded by this camcorder in AFM hi-fi stereo, the playback sound will be in a L+R monaural sound. This is because the monaural models will playback only the sound recorded in the 1.5 MHz carrier.
The AFM hi-fi stereo system of this camcorder enables you to enjoy a live stereo sound atmosphere.

Compatibility with the conventional 8 mm video format
When you playback a tape recorded in AFM stereo hi-fi on a conventional 8 mm video equipment, the sound will be in monaural.

(B-1)


MENU
▶ MODE SET
CUSTOM PRESET
DEMONSTRATION
MODE SET
▶ Hi 8 •AUTO OFF
COMMANDER •ON OFF
CUSTOM MODE ON •OFF
CAM FRAME REC ON •OFF
COSTOM PRESET
− +
CONTRAST
COLOR
SHARPNESS
▶ HUE
RESET
DEMO

(B-2)


MENU
▶ MODE SET
PICTURE ADJUST
MODE SET
▶ Hi 8 •AUTO OFF
COMMANDER •ON OFF
EDIT •ON OFF
HIFI SOUND STEREO
PICTURE ADJUST
▶ SLOW
STILL

On the Menu System

The menu system of this camcorder enables setting and adjustments to further enjoy the features and functions. The menu is displayed in the viewfinder or on the TV screen if connected to a TV. The menu consists of two main parts, one for use during camera recording and the other for use during playback and editing. Refer to the following section for a quick overview of the two menus.

Menu System for Camera Recording

(B-1)

MODE SET
Various mode settings for camera recording is made in this menu.

CUSTOM PRESET
The camcorder can be adjusted to perform camera recording in the desired picture.

DEMONSTRATION
The camcorder automatically shows the manual mode, four programmed AE modes, each title mode, menu displays in sequence.

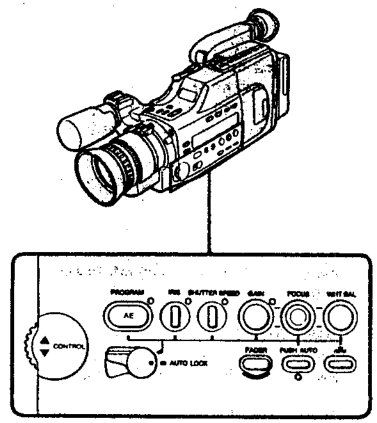
Menu System for Playback and Editing

(B-2)

MODE SET
Various mode settings for playback and editing are made in this menu.

PICTURE ADJUST
The playback picture can be adjusted to obtain maximum quality.

(C)



Selecting the Camera Recording Mode

(C)

Various camera recording modes are available in this camcorder. Automatic adjustment of aperture, gain, white balance, focus, plus the locked shutter speed offers worry-free camera recording for the beginner. Manual adjustment of each of these parameters offers effective camera recording to meet different object and shooting conditions.
Plus, the programmed AE mode offers additional shooting techniques to enrich the creation of your video program.

Full Automatic Adjustment Mode

When the AUTO LOCK switch is set to AUTO LOCK, aperture, gain, white balance, and focus is automatically adjusted and the shutter speed is locked to the normal speed (1/60).

Manual Adjustment Mode

By setting the AUTO LOCK switch down, each parameter can be adjusted manually.

IRIS

- Each press of this button switches between automatic and manual adjustment.
- 15 aperture values (F1.4 to F16) plus aperture close can be selected using the CONTROL dial in the manual mode.

SHUTTER SPEED

- Each press of this button switches the shutter speed as follows:
  1/60 (No indication) → 1/100
  1/1000 ←
- 27 shutter speeds (1/60 to 1/10000) can be selected using the CONTROL dial in the manual mode.

GAIN

- Each press of this button switches between automatic and manual adjustment.
- 8 gain levels (−3 dB to +18 dB) can be selected using the CONTROL dial in the manual mode.

Continued on the next page

FOCUS

- Each press of this button switches between automatic and manual focusing.

PUSH AUTO

- When pressed during manual focusing mode, automatic focusing is activated for the extension that the button is pressed.

WHITE BAL

- Each press of this button switches the mode as follows:

Automatic (no indication) → ⛰ (One-push adjustment)
↑ ↓
💡 (Indoors) ← ☀ (Outdoors)

⛰ (One-push white balance)

- When pressed during ⛰ mode, the white balance can be adjusted manually.

Programmed AE Modes

By setting the AUTO LOCK switch down, four programmed AE modes can be selected to match distinctive camera recording conditions.

Portrait mode
Use to focus on the subject and to have the background out of focus. The aperture and shutter speed is automatically adjusted to maintain the appropriate exposure according to the size and brightness of the subject.

Sports mode
Use to shoot subjects moving at high speeds and then play it back clearly in slow or still. The aperture and shutter speed is automatically adjusted to maintain the appropriate exposure according to the speed of the subject.

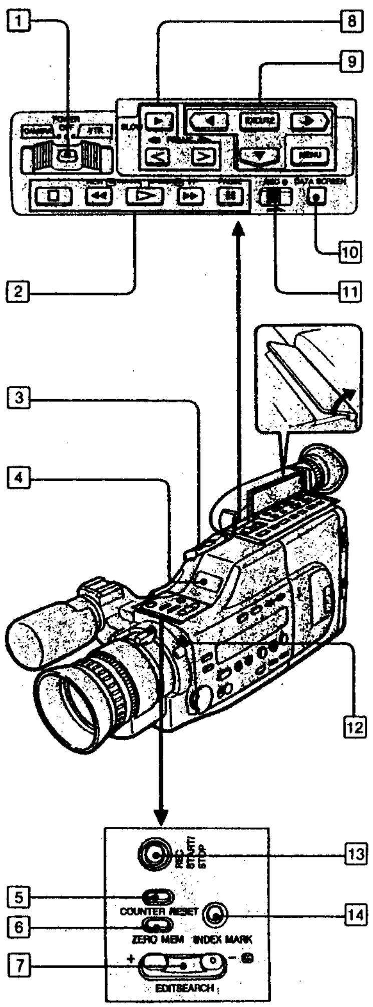
Aperture priority mode
Select the desired aperture (F1.4 to F16) with the CONTROL dial and the shutter speed will be automatically adjusted to maintain the appropriate exposure.

Shutter priority mode
Select the desired shutter speed (1/60 to 1/10000) with the CONTROL dial and the aperture will be automatically adjusted to maintain the appropriate exposure.

Note
Focus and white balance can either be adjusted automatically or manually during the programmed AE mode. The adjusting method is same as those in the "Manual Adjustment Mode."

Identifying the Parts

(D-1)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
POWER
CAMERA
OFF
VTR
SLOW
EXECUTE
MENU
DATA SCREEN
REC START/STOP
COUNTER RESET
ZERO MEM
INDEX MARK
EDITSEARCH

(D-1)

For details of the use of each parts, refer to the pages indicated.

1 POWER switch
CAMERA: for camera recording
VTR: for playing back or editing tapes
OFF: power off

2 Tape transport buttons ●, ●
■ (stop)
◀◀ REW (rewind)
▷ (playback)
▶▶ FF (fastforward)
❚❚ PAUSE

3 Power zoom button ●

4 Remote control sensor ●

5 COUNTER RESET button ●, ●

6 ZERO MEM (memory) button ●, ●

7 EDITSEARCH (and recording review) buttons ●

8 Tape transport buttons ●
❚▶ SLOW (slow speed playback)
< ◀❚❚/❚❚▶ > (direction switch/frame-by-frame playback)

9 Menu operation buttons ●, ●
MENU
EXECUTE
◀/▶/▼

10 DATA SCREEN button ●

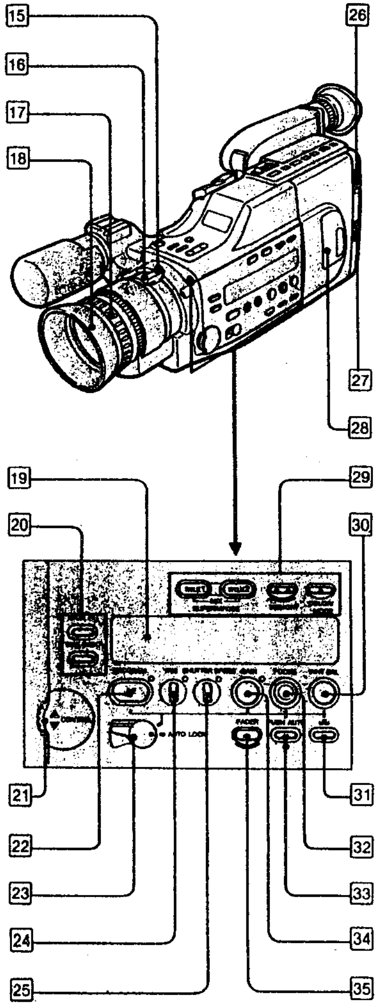
11 ● REC (recording) switch
Slide in the direction of the arrow.

12 Tally lamp ⑱
Lights during camera recording. Blinks when the battery is exhausted, or the tape reaches its end.

13 REC (recording) START/STOP button for low position camera recording ●
Use this button instead of the START/STOP button for low-position recording.

14 INDEX MARK button ●, ●

(D-2)


15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
CONTROL
AUTO LOCK
FADER
PUSH AUTO

(D-2)

15 Macro set button (green) ●

16 Zoom lever ●

17 Focus ring

18 Lens hood ●

19 Display window ⑮

20 DATE (+)/TIME (NEXT) buttons ●, ●

21 CONTRO!̲ dial ●
Move up or down to select the desired parameters during programmed AE mode and manual adjustment mode.

22 PROGRAM AE (programmed auto exposure) button ●

23 AUTO LOCK switch
To adjust the aperture, gain, focus, white balance automatically and the shutter speed locked to 1/60, set to AUTO LOCK.

24 IRIS button

25 SHUTTER SPEED button

26 EJECT (cassette eject) button ●

27 BATT (battery eject) knob ●

28 Cassette holder

29 SUPERIMPOSE buttons ●
TITLE 1 button
TITLE 2 button
MEMORY button
COLOR/MODE button

30 WHT BAL (white balance) button ●

31 ▲ (one-push white balance) button ●

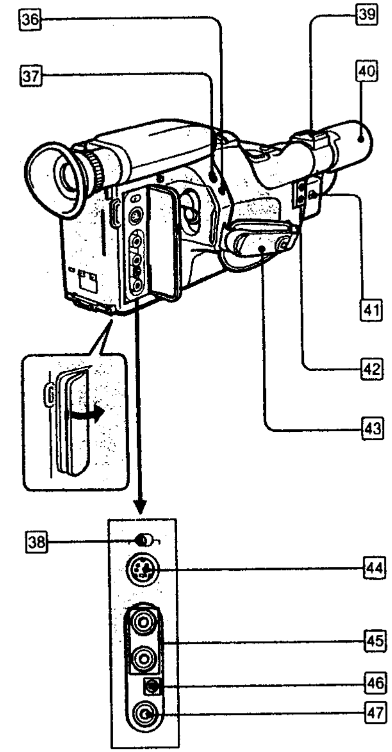
32 FOCUS button ●

33 PUSH AUTO button ●

34 GAIN button

35 FADER button ●

(D-3)



(D-3)

36 **∩ (headphones) jack (stereo mini jack)**

37 **REMOTE connector (stereo mini-minijack)**
Connect a wired remote control unit, a editing controller (not supplied), etc.

38 **IN/OUT (signal input/output) selector ●**

39 **Accessory shoe**
Attach a video light, external microphone, (not supplied) etc.

40 **Built-in one-point stereo microphone**

41 **BUILT-IN MIC (microphone)/WIND selector ●**

42 **EXT MIC and DC OUT (microphone power output) jack**
Connect an external microphone (not supplied).
The MIC jack accepts Sony "plug-in-power" type microphone and the DC OUT jack supplies power to it.

43 **Grip strap ●**

44 **S VIDEO connector (4-pin mini DIN connector)**

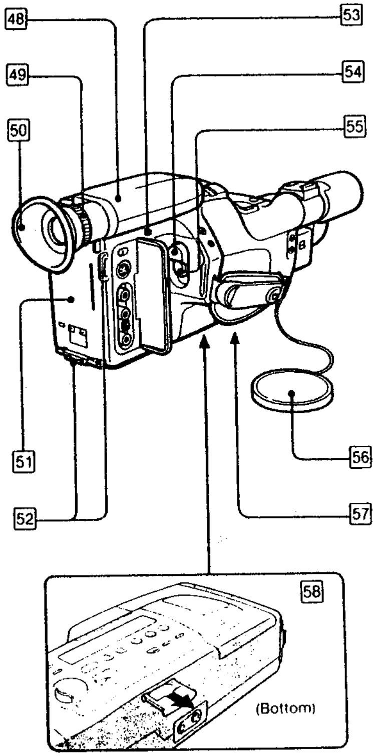
45 **AUDIO L/R input/output jacks (phono jacks) ●**

46 **RFU DC OUT (RFU adaptor DC output) jack (special minijack) ●**
Attach the supplied RFU adaptor here.

47 **VIDEO input/output jack (phono jack) ●**

About the (LANC) mark
(LANC) stands for Local Application Control Bus System. The (LANC) connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

(D-4)



(D-4)

48 **Viewfinder**
The picture being recorded or played back can be monitored in black and white in here.
Caution indicators, tape operation modes, function modes, menu are also displayed.

49 **Viewfinder lens adjustment ring ●**

50 **Eyecup**

51 **Battery mounting surface ㉒**

52 **Hooks for shoulder strap**

53 **PUSH SLIDE button**
Press this button and slide the viewfinder to the desired position.

54 **STANDBY switch**
Slide up to set the camcorder to the standby mode.

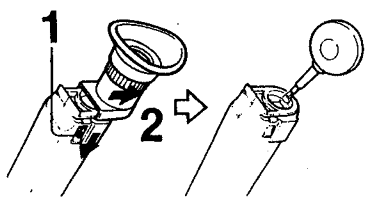
55 **START/STOP button**
Press to start and stop camera recording.

56 **Lens cap**

57 **Tripod receptacle (bottom)**

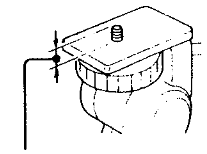
58 **Lithium battery compartment (bottom) ㉗**

(D-5)



To remove the dust from inside the viewfinder (D-5)
Detach the eyecup as illustrated and clean the surface of the screen with a blower.

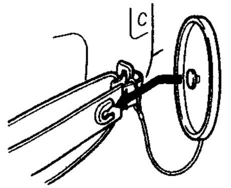
(D-6)



Less than 6.5 mm (9/32 inches)

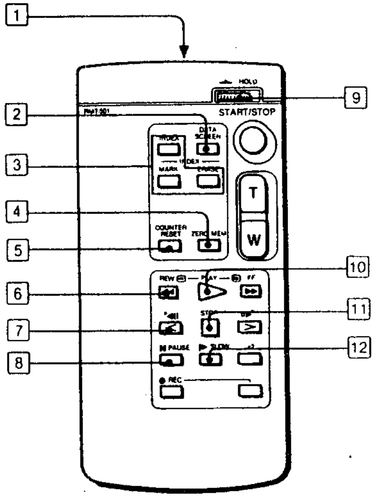
Note on attaching a tripod (D-6)
When attaching a tripod other than Sony's, make sure that the length of the camera mounting screw is less than 6.5 mm (9/32 inches). Otherwise, the screw may damage the inner parts of the camcoder.

(D-7)



When the lens cap is removed (D-7)
Attach the lens cap to the grip strap.

(D-8)



Wireless Remote Commander

(D-8)

You can record or play back a tape from a distance. The buttons on the Commander with the same name or mark as those on the camcorder have the same function. The buttons with an asterisk (*) is available on the Commander only.

When you use the Commander
Be sure to select "COMMANDER ON" in the MODE SET menu (page 40 and 59) and then start operating the camcorder. Point the Commander to the remote sensor on the camcorder.

1 Transmitter

2 **DATA SCREEN** button ㊿

3 **INDEX buttons** ㊳, (54)
INDEX button*
INDEX MARK button
INDEX ERASE button*

4 **ZERO MEM (memory) button** ㊱, (52)

5 **COUNTER RESET button** ㊱, (52)

6 **◀◀ REW (rewind) button** ㊼

7 **</◀II (reverse direction/reverse frame) button** ㊽

8 **II PAUSE button** ㊽

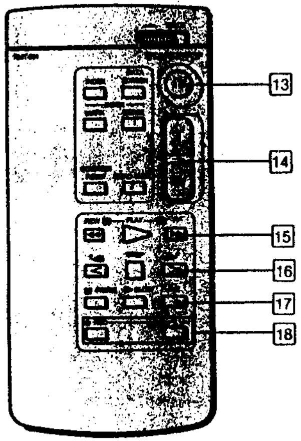
9 **HOLD switch***
Slide in the direction of the arrow to prevent the buttons from being accidentally depressed.

10 **▷ PLAY button** ㊼

11 **■ STOP button** ㊼

12 **I▶ SLOW button** ㊽

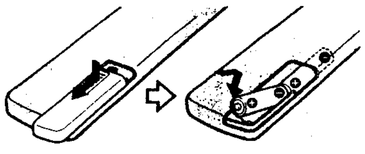
(D-9)



(D-9)

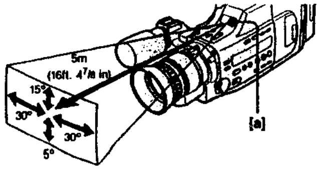
- 13 **START/STOP button**
  Press to start and stop camera recording.
- 14 **Power zoom button ●**
- 15 **▶▶ FF (fast forward) button ●**
- 16 **>/❚❚▶ (forward direction/forward frame) button ●**
- 17 **X 2 button* ●**
  Provided only on the camcorder.
- 18 **Recording buttons**
  Press both buttons simultaneously when recording from another equipment.

(D-10)



Inserting batteries
(D-10)
Insert two size AA (R6) batteries with polarity positioned correctly.

(D-11)



Remotely controllable range
(D-11)
Point the Commander towards the remote sensor. **[a]**

Notes on batteries
- The batteries will last for about six month under normal operation. However, if the Commander will not be used for a long period, remove the batteries to avoid possible damage from battery leakage.
- Do not let direct sunlight or strong light source light the camcorder's remote control sensor. Remote control with the Commander may not be effective.
- The command mode of the Commander is VTR 2. Avoid using Sony VCRs with the same command mode at the same time.

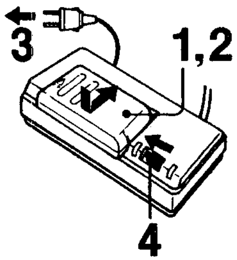
Connecting the Power Sources

First Choose the Power Source

Place	**Power source**	**Accessory to be used**
Outdoors	Battery pack	Battery pack NP-66H (supplied), NP-77H NP-77, or NP-55
	Alkaline batteries	Battery case EBP-55
Indoors	House current	AC power adaptor AC-V35 (supplied), AC-V30, or AC-V55
In the car	12 V or 24 V car battery	DC pack DCP-55, or AC power adaptor AC-V55 and car battery cord DCC-16B

Note on power sources
Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If disconnected, supply the power again immediately.

(E-1)



Using the Battery Pack

Step 1
Charge the battery pack. **(E-1)**

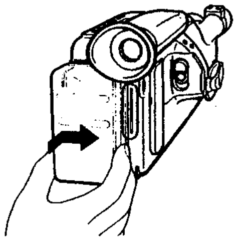
1. **Align the groove on the battery pack with those on the AC power adaptor.**
2. **Slide in the battery pack to the right as illustrated.**
3. **Connect the AC power adaptor to a wall outlet.**
4. **Set the CHARGE/VTR selector to CHARGE.**

	NP-66H (supplied)	NP-55	NP-77	NP-77H
Required charging time	100	60	120	140

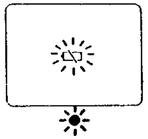
(approx. minutes using AC-V35)

Refer to the operating instructions of the AC power adaptor for details.

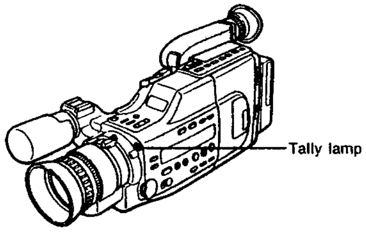
(E-2)



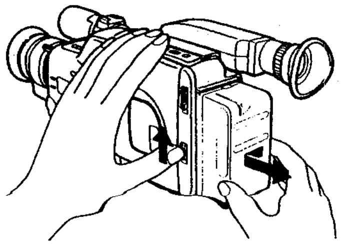
(E-3)



(E-4)



(E-5)



Step 2
Mount the battery pack on the camcorder. **(E-2)**

1. **Align the right side of the battery pack with the line on the camcorder.**

2. **Slide in the battery pack to the right as illustrated.**

Notes
- Make sure that the battery fits completely on the mounting surface of the camcorder.
  Imperfect mounting may damage the projections of the camcorder.
- If your nose touches the battery pack, adjust the position of the viewfinder by sliding it while pressing PUSH SLIDE.

Battery life
A fully charged battery pack lasts for:

	NP-66H (supplied)	NP-55	NP-77	NP-77H
Battery life	75	40	80	100

(approx. minutes continuous recording when used indoors)

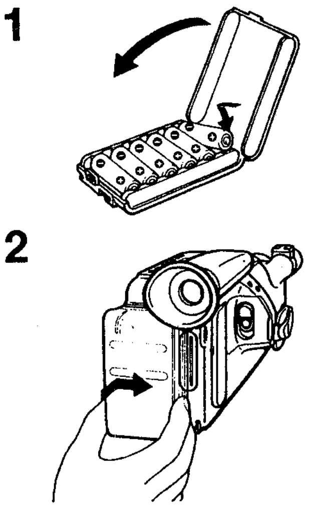
When the battery becomes weak, the ▭ indication and the red lamp in the viewfinder **(E-3)** and the tally lamp **(E-4)** blinks. Replace the battery pack with a fully charged one.

To remove the battery pack
(E-5)
Hold the BATT knob up, and slide the battery pack to the left.

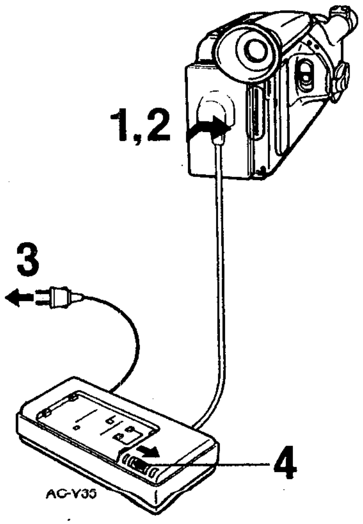
Other options
- AC-V55 AC power adaptor:
  You can charge two battery packs simultaneously.
- BC-55, BC-77 portable battery charger:
  You can charge a battery pack on 100 – 240 V AC.
- DC-V30 car battery pack by connecting the car battery charger to the cigarette lighter socket.

If you have an NP-4000
You can use it for long outdoor recording.

(E-6)



(E-7)



Using Alkaline Batteries

(E-6)
The EBP-55 battery case (not supplied) is required.

1. **Insert size AA (R6) alkaline batteries into the battery case.**

2. **Attach the battery case in the same way as the battery pack.**

Battery life when using alkaline batteries
Approximately 40 minutes under continuous recording indoors.

To remove the battery case
Proceed in the same manner as the battery pack.

Notes on battery life while using the battery case
- Batteries does not last long in cold places.
- No indication appears in the viewfinder to warn of a weak battery.

Using the House Current

(E-7)
The supplied AC-V35 AC power adaptor is required.

1. **Align the right side of the connecting plate with the line on the camcorder.**

2. **Slide in the connecting plate to the right.**

3. **Connect the AC power adaptor to a wall outlet.**

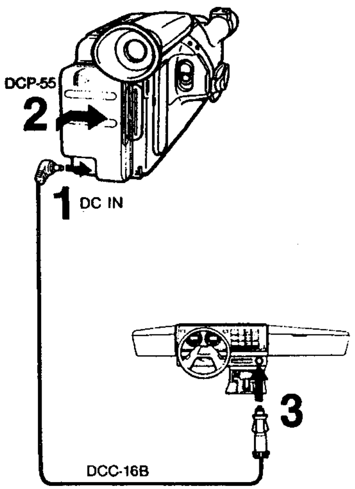
4. **Set the CHARGE/VTR selector on the AC power adaptor to VTR.**

See the operating instruction of the AC power adaptor for further information.

To remove the connecting plate
Proceed in the same manner as the battery pack.

Other power sources
The AC-V30 or AC-V55 AC power adaptor can also be used.

(E-8)



Using the Car Battery

(E-8)

The DCP-55 DC pack (not supplied) is required.

1. **Insert the DCC-16B car battery cord, supplied with the DCP-55 DC pack into the DC IN jack on the DC pack.**
2. **Align the right side of the DC pack with the line on the camcorder and slide it to the right.**
3. **Connect the DCC-16B car battery cord to the cigarette lighter socket of a car (12 V or 24 V).**

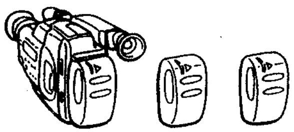
To remove the DC pack
Proceed in the same manner as the battery pack.

Other options
The AC-V55 AC power adaptor and the DCC-16AW car battery cord can also be used to operate this camcorder on a 12 V or 24 V car battery.

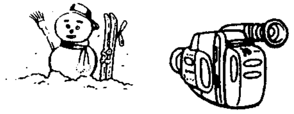
Using the Best of the Battery Pack

How to prepare the rechargeable battery packs

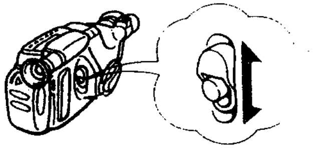
Have a sufficient battery pack power to perform 2 or 3 times as much recording than you have planned.
"Battery life" as indicated in the instruction manual or catalogue of the camcorder is measured by the continuous recording time of the camcorder, placed at a room temperature using a full-charged battery.



Battery life is shorter in a cold climate.
Battery efficiency is decreased and the battery will be used up more quickly.

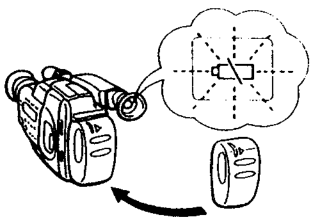


Turn the STANDBY switch of the camcorder off when not recording to save battery power.
A smooth recording can be made even if recording is stopped and started again.
While positioning the subject, selecting an angle, or looking through the viewfinder, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.



When the rechargeable battery pack should be replaced

When the 🪫 mark in the viewfinder changes from slow blinking to rapid blinking while you are recording.
Turn off the power switch of the camcorder and replace the battery pack. Leave the tape in the camcorder in order to obtain a smooth recording after the battery pack is replaced.

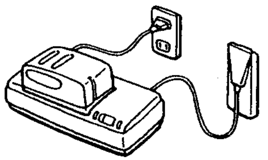


Notes on charging

Before using the battery pack, charge it sufficiently. A brand-new battery pack is not charged.

Recharge the battery pack when it is exhausted.

- If recording is completed before the ⊂⊃ mark appears in the viewfinder, it is recommended that you remove the tape, set POWER to CAMERA, slide up STANDBY, and leave the camcorder until the ⊂⊃ mark blinks rapidly.
- Repeated charging while some capacity remains causes a lowering of battery capacity. However, the original battery capacity can be recovered if you fully discharge and fully charge the battery again.



Recharge the battery pack before using.
If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged.
Charge it again but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Keep the terminals clean

If the terminals (metal parts on the back) are not clean, the battery duration will be shortened.

When the terminals are not clean or when the battery pack has not been used for a long time, install and remove the battery pack from time to time. The will improve the contact condition Also wipe the + and − terminals with a soft cloth or paper.

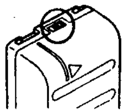
Notes on the rechargeable battery pack

Why the battery pack heats up
During charging or recording, the battery pack heats up. This means energy has been generated and a chemical change has occurred inside the battery pack, but this is not dangerous.

How to care for the battery pack

- Remove the battery pack from the camcorder after using it, and keep it in a cool place.
  When the battery pack is attached to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is turned off. It causes overdischarging and will shorten battery life.
- The battery pack is always discharging even when it is not in use after charging. Thus, it is recommended you charge the battery before using.

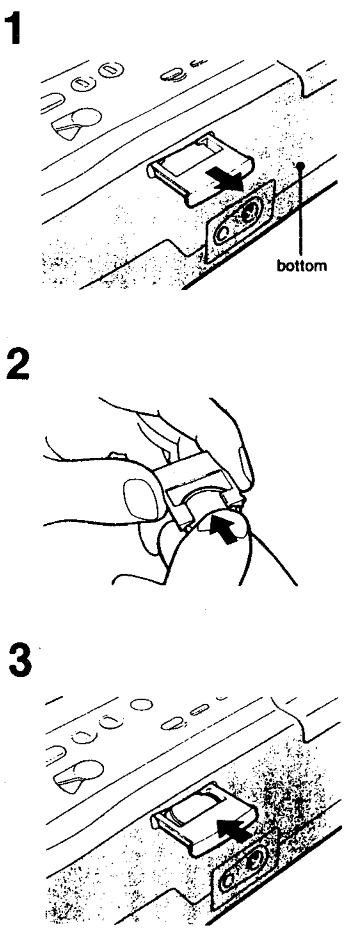
How to use the switch on the battery pack
This switch is provided so that you can remember the charging condition. Set the switch to the "on mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up.



How many times can the battery pack be recharged
It can be fully charged and discharged about 500 times under normal temperatures. If the ⊂⊃ mark blinks rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully caharged one.

Temperature during charging
Lower temperature require a longer charging time. Charging under temperatures ranging from 10°C to 30°C (50°F to 86°F) is recommended.

(F-1)



Setting the Date and Time

Inserting the Lithium Battery

(F-1)

This camcorder uses a lithium battery to activate the clock and to keep the titles in the memory.
Install the supplied lithium battery before operating it for the first time.

1 **Pull out the lithium battery holder from the bottom of the camcorder.**

2 **Install the supplied CR2025 lithium battery with the + side facing the other side.**

3 **Install the lithium battery holder to the bottom of the camcorder.**

To remove the lithium battery
Pull out the lithium battery holder from the bottom of the camcorder and pull out the lithium battery.

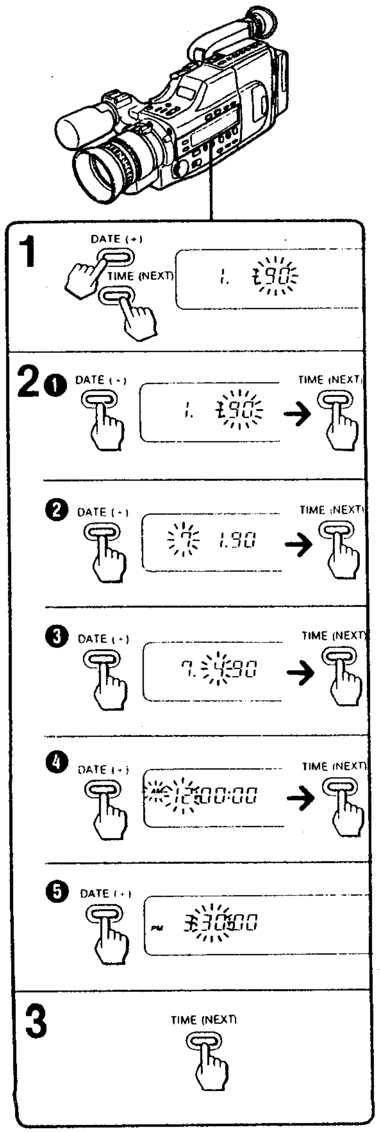
Note on battery life
The battery lasts for approximately 1 year under normal operation. When the lithium battery becomes weak, the time indication keeps blinking in the display window and blinks in the viewfinder for about 5 seconds when the POWER switch is set to CAMERA. **In this case, replace the lithium battery with a Sony CR2025 or a Duracell DL-2025. Use of other batteries may present a risk of fire or explosion.** After replacing the lithium battery, readjust the date and time. If the battery pack or other power sources were attached during lithium battery exchange, readjustment is not necessary.

Cautions

- Keep the lithium battery out of the reach of children.
  Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.

WARNING
Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

(F-2)



Setting the Date and Time

(F-2)

Before you begin

- Check that a power source is installed to the camcorder.
- Set the POWER switch to CAMERA and slide the STANDBY switch up.

Operation

1 **Press DATE (+) and TIME (NEXT) simultaneously for more than 3 seconds.**
The date indication blinks in the display window. The DATE button now functions as + (advance the number) and the TIME button functions as NEXT (execute). If you went passed the desired number, keep pressing the + button. The number eventually returns to the original one.

2 **Adjust the year ❶, month ❷, day ❸, hour ❹, and minute ❺ in this order.**
First, adjust the blinking digits with +, and then press NEXT.

3 **Press NEXT to set the seconds to "00".**
The clock starts operating.

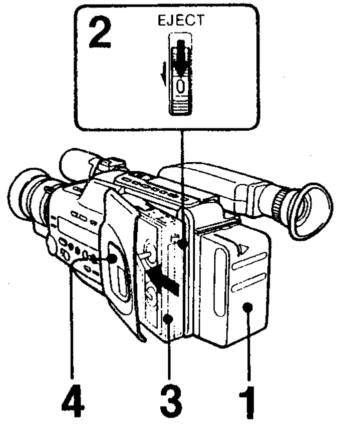
To correct date and time setting
Repeat steps 2 and 3.

To advance the digits faster
Keep pressing +.

To check the preset date and time
Press DATE or TIME. When you press the same button again, the indication is cleared.

Inserting Tapes

(G-1)



(G-1)

1 **Check that a power source is installed.**

2 **Press and slide the EJECT button.**
The cassette holder automatically opens. Do not open it forcibly while it is moving.

3 **Insert a cassette with the window facing outside.**

4 **Press the PUSH mark to close the cassette holder.**

Ejecting the Tape

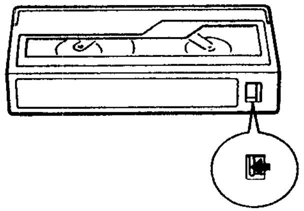
1 **Check that a power source is installed.**

2 **Press and slide the EJECT button.**
The cassette holder automatically opens.

3 **Take out the tape.**

4 **Press the PUSH mark to close the cassette holder.**

(G-2)



Preventing Accidental Erasure

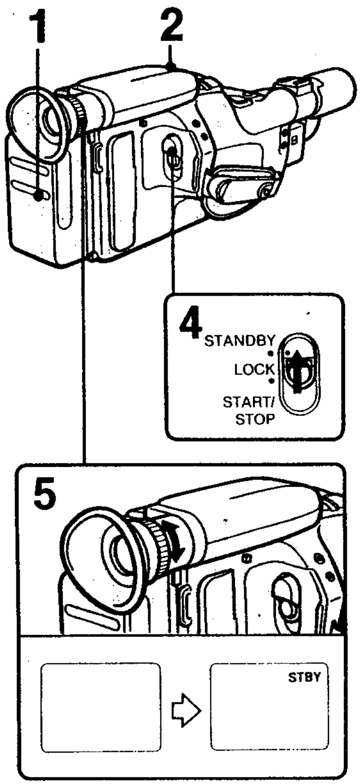
(G-2)

Slide in the red tab on the cassette to prevent recording. To re-record on the same tape, slide the tab out.

Notes on cassette handling

- Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape, or if the tab is out or in, etc.
- Store tapes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

(H)



Adjusting the Viewfinder Lens

(H)

The position of the viewfinder lens for optimum vision varies depending upon the person. Adjust it when using the camcorder for the first time, or when using it after someone else.

1 **Check that a power source is installed.**

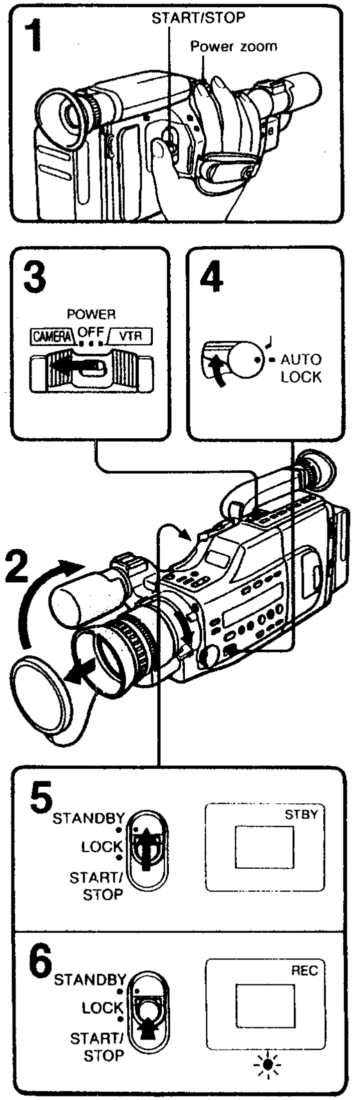
2 **Hold down the green button and slide the POWER switch to CAMERA.**

3 **Insert a cassette.**

4 **Slide the STANDBY switch up.**

5 **Turn the viewfinder lens adjustment ring so that the "STBY" indication in the viewfinder comes into focus.**

(I-1)



Recording a Picture with the Automatic Adjustments

(I-1)

Before recording "once-only" events, we strongly recommend making a trial recording and checking that everything is working perfectly.

1 **Hold the camcorder as illustrated.**
Put your hand through the grip strap and check that your thumb easily touches the START/STOP button.

2 **Remove the lens cap.**

3 **Hold down the green button and slide the POWER switch to CAMERA.**

4 **Set the AUTO LOCK switch to AUTO LOCK and turn the zoom lever downwards.**

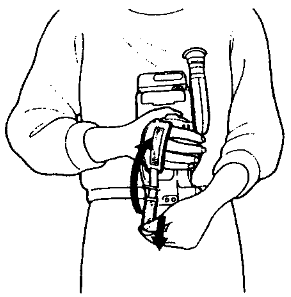
5 **Slide the STANDBY switch up.**
"STBY" and the auto-focus frame appear in the viewfinder. The camcorder is now set to the recording standby mode. The automatic focusing functions within the objects inside the auto-focus frame. Do not turn or stop the focus ring forcibly.

6 **Press the START/STOP button.**
"REC" appears and the red lamp lights in the viewfinder. The camcorder is recording.

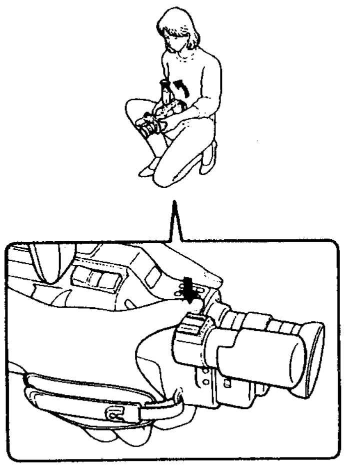
To stop recording momentarily
Press the START/STOP button again. The camcorder enters the standby mode with "STBY" indication in the viewfinder.

To stop recording
Slide the STANDBY switch down and set the POWER switch OFF.

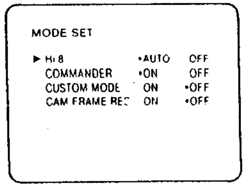
(I-2)



(I-3)



(I-4)



```
MODE SET

▶ Hi 8            •AUTO    OFF
  COMMANDER       •ON      OFF
  CUSTOM MODE      ON     •OFF
  CAM FRAME REC    ON     •OFF
```

How to fix the grip strap

(I-2)

In step 1 on the previous page, hold the camcorder pressed to your body and pull the grip strap upwards.

For low-position shooting

(I-3)

The viewfinder can be turned up 90 degrees. Press the REC START/STOP button in the front of the camcorder instead of the START/STOP button to start and stop the camera recording.

How to record in the Hi8 mode

(I-4)

The camcorder is set to record in the AUTO mode which automatically records in the Hi8 mode when a Hi8 tape is used. To record in the standard mode with the Hi8 tape change the setting in the menu.
See "Using the Menu during Camera Recording" on page 40. On the playback compatibility of Hi8 tape and standard tape refer to page 7.

Notes on recording

- To record from the beginning of the cassette, run the tape for about 15 seconds before recording. This will avoid missing the starting point when the tape is played back.
- If the POWER switch is moved during recording, the tape will stop.
- When moving from indoors to outdoors, or vice versa, slide the STANDBY switch up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Note on standby mode

If you leave the camcorder in the standby mode for 5 minutes or more, the camcorder will automatically be turned off. To resume the standby mode, slide the STANDBY switch down once and slide it up again. To start recording, press the START/STOP button.

Notes on light sources

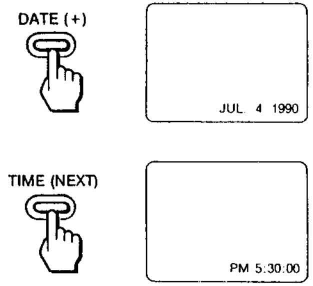
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.
- If you shoot an object under bright lighting conditions just after shooting in a dark place, the picture may not appear in the viewfinder. In this case, point the camcorder to another direction.

Brightness Levels

The single greatest influence on picture quality is the brightness level. Using the following chart as a reference, take a few minutes to familiarize yourself with brightness levels to improve your recording.

	Unit: lux	
Snow-covered mountains Snow fields Sandy beach, clear day in summer		ND filter recommended
Clear day, mid-day (100,000) Clear day, mid-afternoon (35,000) Overcast day, mid-day (32,000)	100,000	Normal Recording
	10,000	
Overcast day, one hour after sunrise (2,000) Office lit by fluorescent lamps, near window (1,000) Clear day, one hour before sunset (1,000)	1,000	
Department store counter (500 – 700) Station wicket (650) Office lit by fluorescent lamps (400 – 500)	500	
Room lit by two 30 W fluorescent lamps (300) Subway station platform (300)	300	
Arcade at night (150 – 200)	100	
Theater lobby (15 – 35) Candlelight (10 – 15)	10	Video light recommended

(I-5)



To Record Date and Time

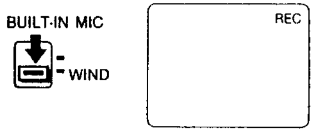
(I-5)

1 **Set the camcorder in the camera recording standby or camera recording mode.**

2 **Press the DATE button to indicate the date and TIME button to indicate the time.**
The date or time displayed in the viewfinder will be recorded together with the picture.

To stop recording date or time
Press the DATE or TIME button. The indication is cleared and the recording continues.

(I-6)

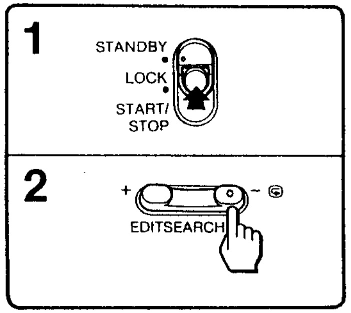


When there is Strong Wind

(I-6)

Set the BUILT-IN MIC selector to WIND.
The noise resulting from the wind will be reduced.
After recording, set it to the upper (green) position.

(I-7)



To Check the Last Portion of the Recording

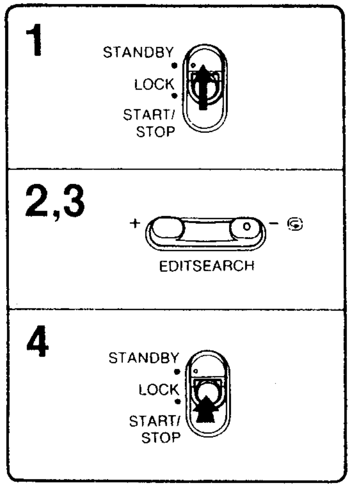
(I-7)

1 **Set the camcorder in the recording pause mode by pressing the START/STOP button.**

2 **Press the ⊜ side of the EDITSEARCH button.**
The last few seconds of the recorded portion is rewound and then is played back in the viewfinder. After a few seconds of playback, the camcorder returns to the recording pause mode.

If the picture was not recorded
the video heads may be contaminated. Clean the heads using the Sony V8-25CLH video head cleaning cassette or the equivalent.

(I-8)



To Re-record on a previously Recorded Portion

(I-8)

1 **Slide the STANDBY switch up.**
The camcorder enters the standby mode.

2 **Look in the viewfinder and search for the point from where you want to begin the recording.**
Keep pressing the + side of the EDITSEARCH button to advance the picture at a normal playback speed or the – side to reverse the picture.

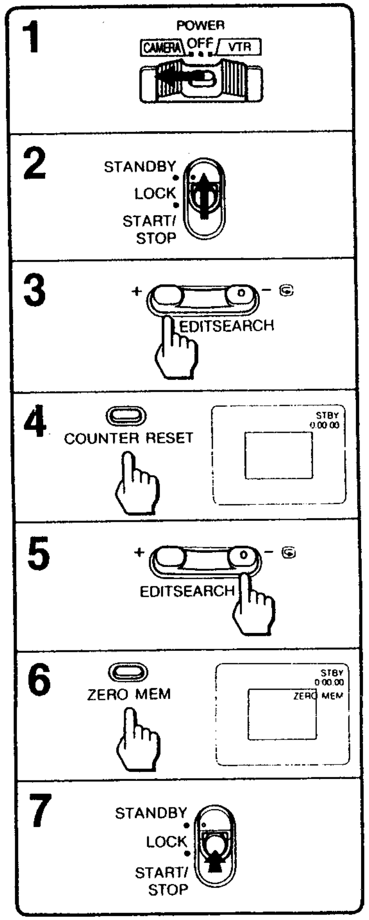
3 **At the desired point, release the EDITSEARCH button.**

4 **Press the START/STOP button to start recording.**

As long as the tape is not removed, the re-recorded picture will be smoothly connected even if the START/STOP button is slid down and slid up again, or the power is turned off and on.

To stop recording
Slide the STANDBY switch down.

(I-9)


1
POWER
CAMERA OFF VTR
2
STANDBY
LOCK
START/
STOP
3
+
−
EDITSEARCH
4
COUNTER RESET
STBY
0:00:00
5
+
−
EDITSEARCH
6
ZERO MEM
STBY
0:00:00
ZERO MEM
7
STANDBY
LOCK
START/
STOP

To Re-record a Picure in the Middle of a Recorded Tape (Insert Recording)

(I-9)

1 **Hold down the green button and slide the POWER switch to CAMERA.**

2 **Slide the STANDBY switch up.**
The camcorder enters the recording standby mode.

3 **While looking in the viewfinder, keep pressing the + or − side of the EDITSEARCH button and release it at the point where the insertion should end.**

4 **Press the COUNTER RESET button.**
The counter is reset to "0:00:00".

5 **While looking in the viewfinder, keep pressing the − side of the EDITSEARCH button and release the button at the point where the insertion should start.**

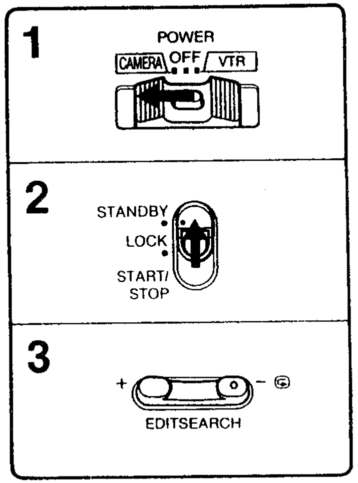
6 **Press the ZERO MEM buttton.**
The insert end point is stored in the memory.

7 **Press START/STOP.**
Insert recording starts. It stops automatically around the counter zero point.

To change the end point of the edit
Press ZERO MEM so that the ZERO MEM indication disappears. Start from step 3.

Note
The picture may be distorted at the end of the inserted portion when it is played back.

(I-10)


1
POWER
CAMERA OFF VTR
2
STANDBY
LOCK
START/
STOP
3
+
−
EDITSEARCH

Playing Back the Picture Instantly

(I-10)

You can check the recorded picture in the viewfinder. The sound is not heard.

1 **Hold down the green button and slide the POWER switch to CAMERA.**

2 **Slide the STANDBY switch up.**

3 **Keep pressing the + or − side of the EDITSEARCH button to playback the picture.**
+ side: To view the playback picture.
− side: To view the playback picture in reverse.

To stop playback
Release the EDITSEARCH button.

To monitor the sound while viewing the playback picture in the viewfinder
1 Connect a headphone to the ∩ jack.
2 Hold down the green button and slide the POWER switch to VTR.
3 Press ◀◀ to rewind the tape and press ■ where you want start playing back.
4 Press ▷ to start playback.

Marking Index Signals

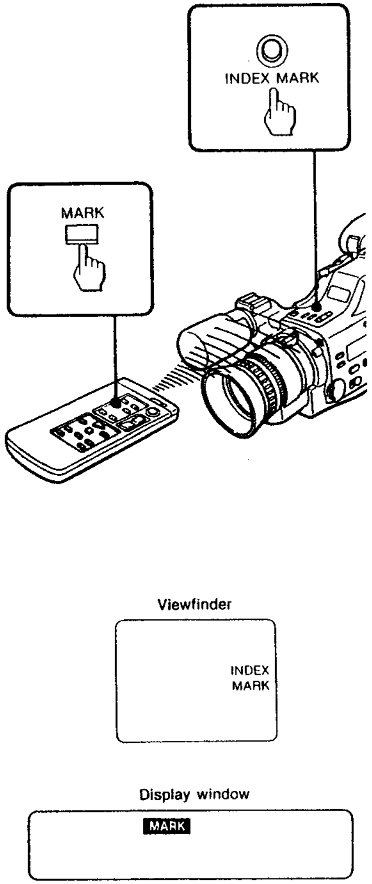
The beginning of the desired program can be located easily by marking an index signal and searching for it later.

To Mark an Index Signal during Camera Recording

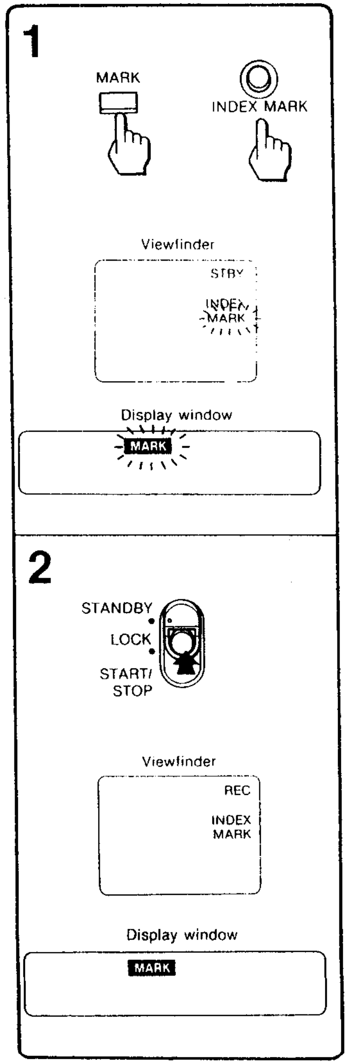
(J-1)

Press the INDEX MARK button on the camcorder or the Commander at the point you wish to locate later.
The INDEX MARK indication appears in the viewfinder and MARK appears in the display window to indicate that the index signal has been marked.

(J-1)


INDEX MARK
MARK
Viewfinder
INDEX MARK
Display window
MARK

(J-2)


1
MARK
INDEX MARK
Viewfinder
STBY
INDEX MARK
Display window
MARK
2
STANDBY
LOCK
START/STOP
Viewfinder
REC
INDEX MARK
Display window
MARK

To Mark an Index Signal at the Beginning of Camera Recording

(J-2)

1 **Press the INDEX MARK button on the camcorder or the Commander after setting the camcorder in the camera recording standby mode.**
The INDEX MARK indication appears in the viewfinder with MARK blinking and MARK blinks in the display window.

2 **Press the START/STOP button to release the camera recording standby mode.**
The MARK indication stops blinking to indicate that the index signal has been marked.

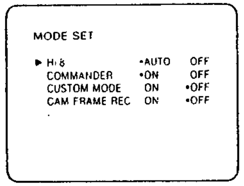
For other operations using the index signal
See page 54.

Notes

- The index signals can be marked at any desired point. But make sure there is more than 2 minutes of space between two index signals. If there is more than one index signal marked within an interval of 2 minutes on a normal tape run, the unit may not function properly.
- The INDEX MARK indication disappears automatically.
  Continue to record until the INDEX MARK disappears so that the recorded index signal can be searched correctly in the playback mode.

When the POWER switch is set to VTR, the index signal can also be marked during recording.
If the REC switch is pressed to start recording in the stop mode, an index signal will be automatically marked at the begining of the tape.

(K-1)


MODE SET
▶ Hi8 •AUTO OFF
COMMANDER •ON OFF
CUSTOM MODE ON •OFF
CAM FRAME REC ON •OFF

Using the Menu during Camera Recording

MODE SET menu, CUSTOM PRESET menu, and DEMONSTRATION menu can be used during camera recording. In the MODE SET menu, various settings to further enjoy the features of the camcorder can be selected. In the CUSTOM PRESET menu, the camcoder can be set to record in the desired picture tone. In the DEMONSTRATION menu, the camcorder displays the various indications and the operations available.

MODE SET Menu

(K-1)

Hi8 AUTO/OFF

- Select AUTO to set the recording mode (Hi8 or normal) automatically depending upon the tape being used.
- Select OFF if you wish to record in the normal mode regardless of the type of tape being used.

COMMANDER ON/OFF

- Select ON when using the supplied Commander for camera recording.
- Select OFF when the supplied Commander will not be used for camera recording.

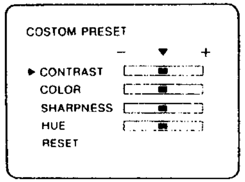
CUSTOM MODE ON/OFF

- Select ON to perform camera recording based on the setting made in the CUSTOM PRESET menu.
- Select OFF to perform camera recording without the setting made in the CUSTOM PRESET menu.

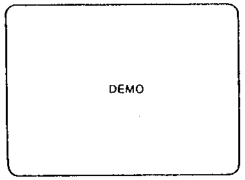
CAM FRAME REC ON/OFF

- Select ON to perform frame recording. See page 73.
- Select OFF when frame recording will not be performed.

(K-2)



(K-3)



CUSTOM PRESET Menu

(K-2)

The camera can be preset to record in the desired picture using the CUSTOM PRESET menu. The items that can be preset are CONTRAST, COLOR, SHARPNESS, and HUE.

DEMONSTRATION Menu

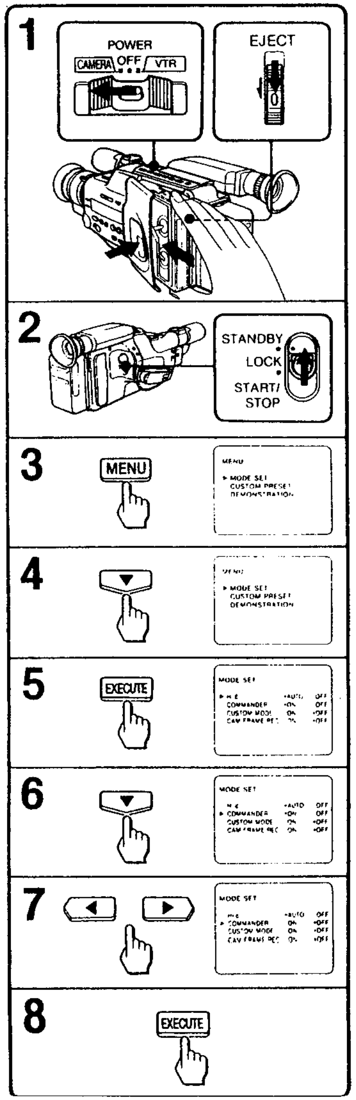
(K-3)

The camcorder will automatically demonstrate the manual modes, programmed AE modes, title modes, MODE SET menu for camera recording, and the CUSTOM PRESET menu. The sequence can be monitored in the viewfinder or on a TV screen if connected.

Operation

1. **Store 2 titles in the memory referring to pages 75 to 78.**
2. **To monitor the sequence on the TV screen, connect the camcorder and the TV referring to pages 43 to 46 and press DATA SCREEN.**
3. **Call up the MENU display and select DEMONSTRATION referring to page 42.**
4. **To get out of the DEMONSTRATION menu, press ◀, ▶, or ▼.**
   To return to the MENU display, press MENU.

(K-4)



How to Call Up the Menu Display

(K-4)

Press the DATA SCREEN button to display the menu on the TV screen.

Example: To select COMMANDER OFF.

1. **Set the POWER switch to CAMERA and insert a cassette.**
2. **Slide the STANDBY switch up.**
3. **Press the MENU button.**
   The MENU display appears.
4. **Press ▼ and move cursor to the desired item.**
5. **Press the EXECUTE button.**
   The selected menu appears.
6. **Press ▼ and move cursor to the desired item.**
7. **Press ◀ or ▶ to select the desired setting.**
8. **Press the EXECUTE button.**
   The setting is stored in the camcorder and the menu display is cleared.

The setting is stored in the memory even if the POWER switch is set to OFF or the battery pack is removed, as long as the lithium battery is installed.

To display another menu
Start from step 1 in "How to Call Up the Menu Display."

To return to the original screen without storing the setting
Press the MENU button instead of EXECUTE.

To make multiple settings within one menu
After step 7 in "How to Call Up the Menu Display", press ▼ and move cursor to the desired item.

Connections for Playback

To view the playback picture on the TV screen, the camcorder and TV and/or the VCR must be connected properly. Check the following connecting examples and go to the appropriate section to make the connections required.

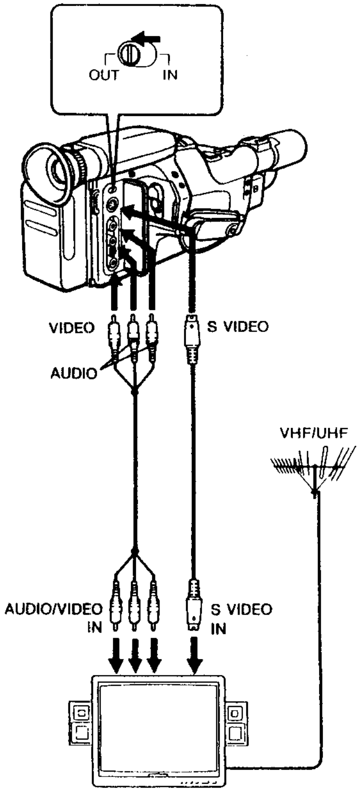
Case 1: Connecting the camcorder to a TV with video/audio input jacks.
Case 2: Connecting the camcorder to a TV without video/audio input jacks.
Case 3: Connecting the camcorder to a TV via a VCR that has an input selector.
Case 4: Connecting the camcorder to a TV via a VCR that does not have an input selector.

Case 1: Connection to a TV with Video/Audio Input Jacks

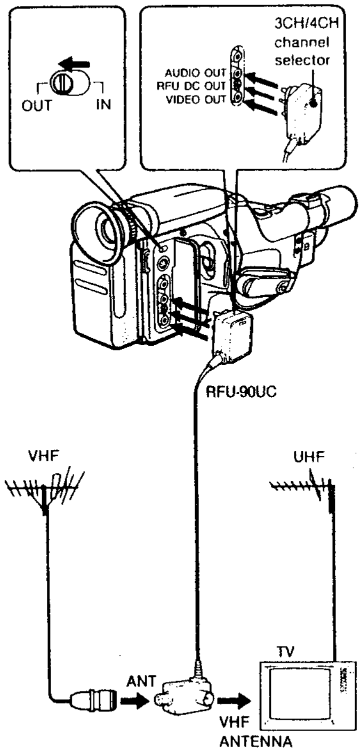
(L-1)

1. **Connect the camcorder and the TV using the supplied AV connecting cable.**
   - If your TV has an S video input jack, connect the S VIDEO jack on the camcorder and the S video input jack on the TV using the supplied S VIDEO connecting cable.
   - If your TV is a monaural type, connect only the white plug for audio on the TV.
2. **Set the IN/OUT selector on the camcorder to OUT.**
3. **Set the TV/VTR selector on the TV to VIDEO.**

(L-1)



(L-2)


OUT
IN
3CH/4CH
channel
selector
AUDIO OUT
RFU DC OUT
VIDEO OUT
RFU-90UC
VHF
UHF
TV
ANT
VHF
ANTENNA

Case 2: Connection to a TV without Video/Audio Input Jacks

(L-2)

Step 1
Connecting the camcorder, the RFU adaptor (RFU-90UC, supplied), and the TV.

1. **Connect the RFU adaptor to the camcorder.**
2. **Connect the VHF antenna and the RFU adaptor (supplied).**
3. **Connect the RFU adaptor to the TV.**
4. **Set the IN/OUT selector on the camcorder to OUT.**

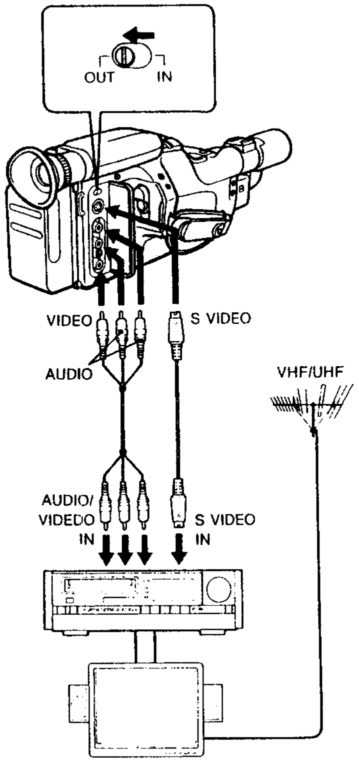
Step 2
Selection of the TV channel to monitor the camcorder playback.

1. **Set the RF unit selector on the RFU adaptor to either channel 3 or 4, whichever is not active in your area.**
2. **Select the same channel on the TV.**

Step 3
Whenever playing back a tape, be sure to set the TV to the channel that you have selected in step 2.

Note
In this connection, the sound will be in monaural.

(L-3)

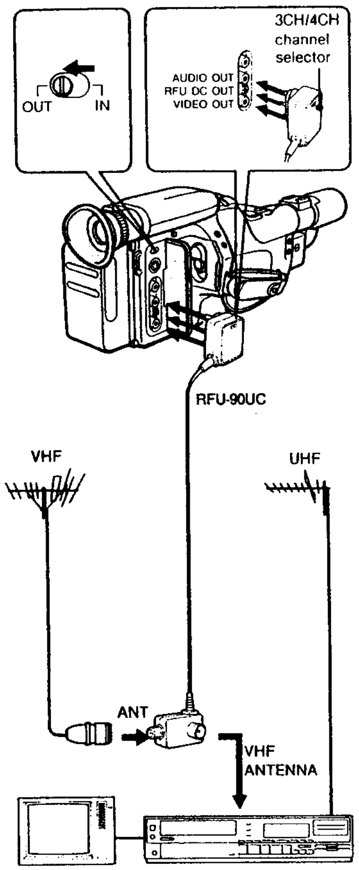

OUT
IN
VIDEO
S VIDEO
AUDIO
VHF/UHF
AUDIO/
VIDEDO
IN
S VIDEO
IN

Case 3: Connection to a TV via a VCR with an Input Selector

(L-3)

1. **Connect the camcorder to the VCR using the supplied AV connecting cable.**
   - If your VCR has an S video input jack, connect the S VIDEO jack on the camcorder and the S video input jack on the VCR using the supplied S VIDEO connecting cable.
   - If your TV is a monaural type, connect only the white plug for audio on the TV.
2. **Set the IN/OUT selector on the camcorder to OUT.**
3. **Set the input selector on the VCR to LINE and set the TV/VTR selector on the TV to VCR.**

(L-4)



Case 4: Connecting the TV via a VCR without an Input Selector

(L-4)

Step 1

1 **Connect the RFU adaptor to the camcorder.**

2 **Connect the VHF antenna and the RFU adaptor.**

3 **Connect the RFU adaptor to the TV.**

4 **Set the IN/OUT selector on the camcorder to OUT.**

Step 2

1 **Set the RF unit selector on the RFU adaptor to either channel 3 or 4, whichever is not active in your area.**

2 **Select the same channel on the TV.**

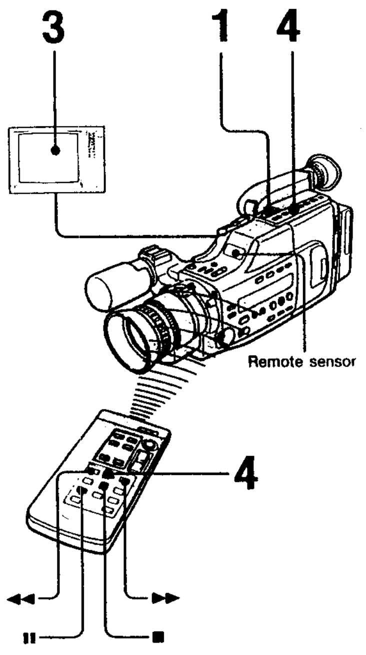
Step 3

Whenever playing back a tape, be sure to set the TV to the same channel that you have selected in step 2.

Note

In this connection, the sound will be in monaural.

(M-1)



Playing Back a Tape

Use the buttons on the camcorder as well as the buttons on the Commander. The Commander is useful when operating the camcorder from a distance. Be sure to select COMMANDER ON in the menu before operation. (See page 59.)

(M-1)

1 **Hold down the green button and slide the POWER switch to VTR.**

2 **Insert a cassette.**

3 **Turn on the TV and the VCR.**
- For a TV with video/audio input jacks: Set the TV/VIDEO selector to VIDEO.
- For a TV without video/audio input jacks: Select the channel for playing back the camcorder.

4 **Press ▷.**
Playback starts.
The ▷ on the camcorder can also be used.

To view a still picture
Press ❚❚ during playback.

To resume playback
Press ▷ or ❚❚ again.

To stop playback
Press ■.

To rewind the tape
Press ◀◀.

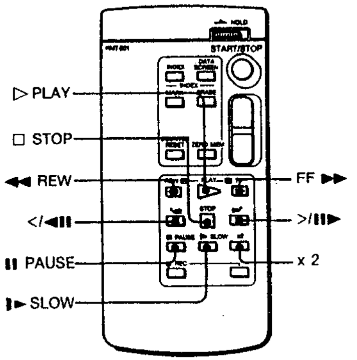
To advance the tape rapidly
Press ▶▶.

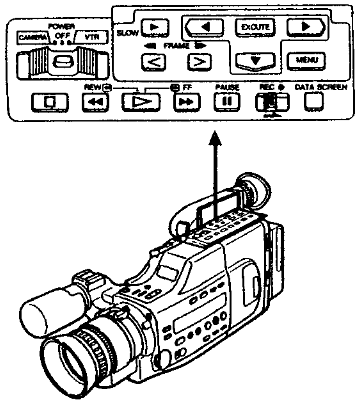
After playback
Set the POWER switch on the camcorder and the CHARGE/VTR selector on the AC power adaptor to OFF.

Note

When the still picture lasts for 5 minutes or more, the camcorder automatically enters the stop mode.

(M-2)





Various Playback Modes

(M-2)

To view a still picture (playback pause)

Press II during playback.
II◀ or ▶II appears in the viewfinder.
To resume normal playback, press ▷ or II.

To change the playback direction

Press </◀II for the reverse or II▶/> for the forward direction during playback.
−× 1 or × 1 appears in the viewfinder.
To resume normal playback, press ▷.

To view the picture at 1/5 speed (slow playback)

Set the playback direction with </◀II or II▶/>, and then press I▶ during playback.
◀I or I▶ appears in the viewfinder.
When slow playback lasts for 1 minute or more, forward or reverse playback at normal speed starts automatically, according to the tape direction.
To resume normal playback, press ▷.

To view the picture at double speed (Commander only)

Set the playback direction with </◀II or II▶/>, and then press × 2 on the Commander.
− × 2 or × 2 appears in the viewfinder.
To resume normal playback, press ▷.

To view the picture frame-by-frame

Press </◀II or II▶/> in the still picture mode. Each press of the button moves the picture one frame. ◀II or II▶ appears in the viewfinder. If you keep pressing </◀II or II▶/>, playback at 1/30 speed starts.
To resume normal playback, press ▷.

To locate the desired scene — Picture search

Keep pressing ◀◀ or ▶▶ during playback in the still picture mode. ⇐ or ⇒ appears in the viewfinder.
To resume normal playback, release the button.

To locate the desired scene quickly — Skip scan

Press ◀◀ while rewinding or ▶▶ while advancing the tape rapidly. ⇐ or ⇒ appears in the viewfinder.
To resume normal playback, press ▷.

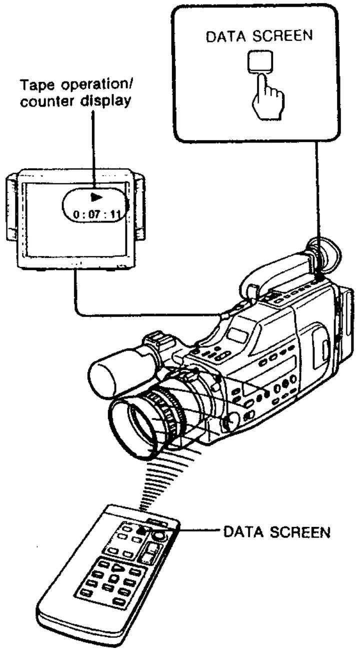
Notes during the above playback

- Sound is heard only in the double speed forward playback only. The sound has noise.
- Noise may appear in the still picture.
- Streaks may appear when pressing the ◀◀ or ▶▶.
- Streaks may appear when playing back a tape recorded in the LP mode in the still, frame-by-frame, or slow.
- The color of the picture may change during still, frame-by-frame, slow or when using the ◀◀ or ▶▶ button.

If picture is noisy during frame-by-frame or slow playback

Adjust the picture referring to "PICTURE ADJUST menu" (page 60) while playing back the tape in slow speed.
The noise may not be eliminated if the tape was recorded on another VCR.

(M-3)



Displaying the Information in the Viewfinder onto the TV Screen

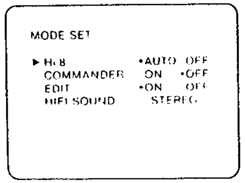
(M-3)

Connect the camcorder and the TV properly and press the DATA SCREEN button.
The indication in the viewfinder is superimposed on the TV screen. This function is convenient to monitor the indications in the viewfinder during menu operations or when the camcorder is remotely operated by the Commander.

To clear the indication
Press the DATA SCREEN button again.

Note
When using the camcorder as a playback VCR during editing, be sure to clear the indications from the TV screen. Otherwise, the indications will be recorded with the picture.

(M-4)



```
MODE SET

▶ Hi 8          •AUTO  OFF
  COMMANDER      ON   •OFF
  EDIT          •ON    OFF
  HIFI SOUND      STEREO
```

Selecting the Monitor Sound

(M-4)

The playback sound can be selected by the menu.
Refer to "Using the Menu during Playback or Editing" (page 59) for details.

When playing back an AFM Hi-Fi stereo sound recorded tape
Select STEREO.

When playing back a dual sound recorded tape
Select 1 or 2 to monitor the desired sound.

Using the Tape Counter

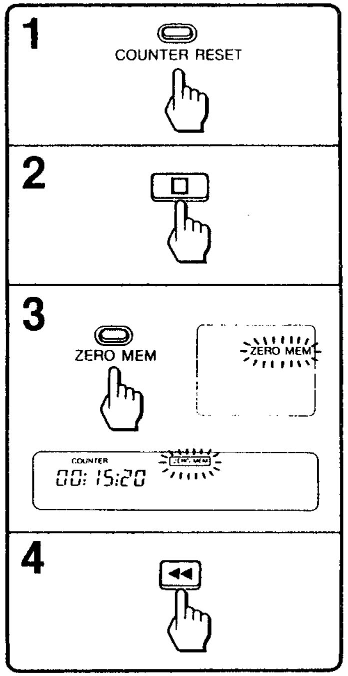
The counter in the viewfinder and the display window indicates the elapsed time of the recording or playback.

To Index the Entire Tape

Press the COUNTER RESET button at the beginning of the tape so that the counter shows "0:00:00".
Write down the counter reading at a particular point so that you can easily find that point later by referring to the tape counter.

To Return to a Pre-registered Point

(N)



1 **During recording or playback, press the COUNTER RESET button at the point to be located later.**

2 **Press ■ when the recording or playback is finished.**

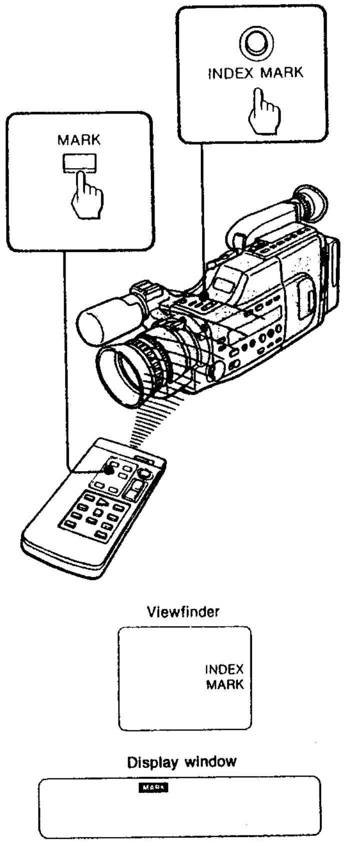
3 **Press the ZERO MEM button.**
The "ZERO MEM" indication blinks in the viewfinder and the display window.

4 **Press ◀◀ or ▶▶.**
The tape rewinds or advances and stops automatically when the counter reaches approximately "0:00:00".

To cancel the ZERO MEM function
Press the ZERO MEM button.

Notes on the counter and the ZERO MEM button
- The counter reading and the actual point on the tape may not correspond exactly. Use the counter as a guide. There will be a lag of several seconds especially when fast-forward and rewind operation is repeated or when playing back a tape with both the SP mode and LP mode recording.
- Be sure to press the ZERO MEM button after the tape stops. It does not function during recording or playback.
- The ZERO MEM mode is automatically canceled after each operation.

(O-1)


INDEX MARK
MARK
Viewfinder
INDEX
MARK
Display window
MARK

Marking Index Signals during Playback

The beginning of the desired program can be located easily be marking an index signal and searching for it later.

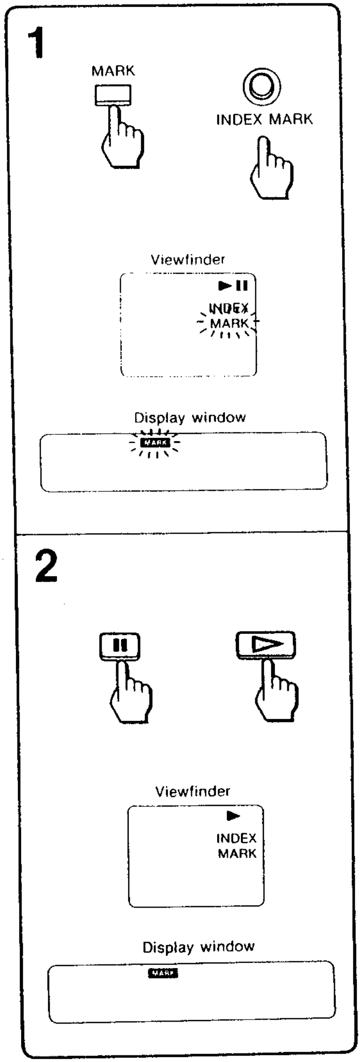
To Mark an Index Signal during Playback

(O-1)

Press the INDEX MARK button on the camcorder or the Commander at the point you wish to locate later.

The INDEX MARK indication appears in the viewfinder and MARK appears in the display window to indicate that the index signal has been marked.

(O-2)


1
MARK
INDEX MARK
Viewfinder
►II
INDEX
MARK
Display window
MARK
2
Viewfinder
►
INDEX
MARK
Display window
MARK

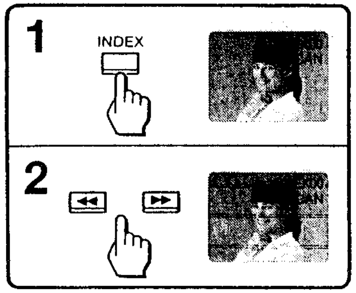
To Mark an Index Signal at the Beginning of the Playback

(O-2)

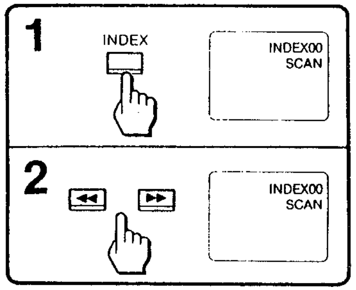
1 **Press the INDEX MARK button on the camcorder or the Commander in the playback pause mode.**
The INDEX MARK indication appears in the viewfinder with MARK blinking and MARK blinks in the dispaly window.

2 **Press ❚❚ or ▷ to release the playback pause mode.**
The MARK indication stops blinking to indicate that the index signal has been marked.

(O-3)



(O-4)



Scanning or Searching the Beginning of a Program during Playback

To scan the beginning of each program while monitoring the picture — Index scan (1)
(O-3)

1 **Press the INDEX button on the Commander during playback or playback pause mode.**

2 **Press ◀◀ or ▶▶.**
The tape is played back for approximately 10 seconds from the point where the index signal was marked.

3 **Press ▷ when the desired program is displayed to continue playback.**
When no button is pressed, the picture is automatically scanned to the next or previous program.

To scan the beginning of each program in sequence — Index scan (2)
(O-4)

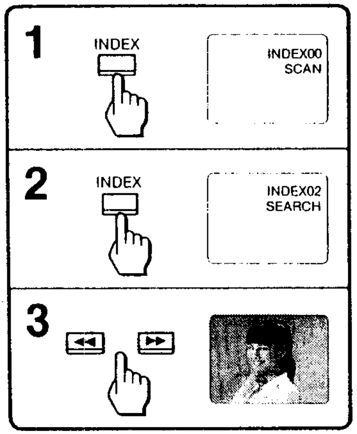
1 **Press the INDEX button on the Commander during stop mode.**

2 **Press the ◀◀ or ▶▶ button.**
The tape is played back for approximately 10 seconds from the point where the index signal is marked.

3 **Press ▷ when the desired program is displayed to continue playback.**
When no button is pressed, the picture is automatically scanned to the next or previous program.

To cancel the index scan mode
Press ▷.

(O-5)



To locate the desired program — Index search

(O-5)

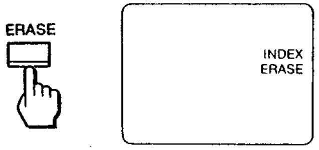
1 **Press the INDEX button on the Commander once during stop or playback mode.**

2 **Press the INDEX button on the Commander until the index number of the desired program is displayed in the viewfinder.**

3 **Press ◀◀ or ▶▶.**
The playback starts from the beginning of the desired program.

To correct the index number
Press ■ and repeat the steps above.

(O-6)



Erasing the Index Signals

(O-6)

1 **Locate the index signal to be erased by index scan or index search.**

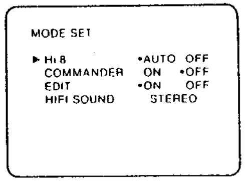
2 **Press the INDEX ERASE button on the Commander within approximately 10 seconds while the tape is being played back.**

3 **After the index signal is erased, the camcorder returns to index scan or index search, whichever was used in step 1.**

Notes when erasing index signals

- Press the ERASE button more than 2 seconds after the playback begins in step 2.
- The index signals cannot be erased if the red tab on the cassette is slid out.
- The recorded sound cannot be heard and a black band appears in the bottom of the picture while the index signal is being erased. This will not affect the recorded sound or picture.
- Index signals marked with VCRs such as the EV-S900 series can be detected but cannot be erased with this camcorder.
  Index signals marked with this unit can be detected but cannot be erased with VCRs such as the EV-S900 series.
- Index signal may be erased when PCM after recording is made in the portion where the index signal is marked.

(P-1)



```
MODE SET

▶ Hi 8            •AUTO   OFF
  COMMANDER        ON    •OFF
  EDIT            •ON     OFF
  HIFI SOUND        STEREO
```

Using the Menu during Playback or Editing

MODE SET menu and PICTURE ADJUST menu can be used during playback or editing. In the MODE SET menu, various settings to further enjoy the features of the camcorder can be selected. In the PICTURE ADJUST menu, the picture in the still or slow mode can be adjusted.

MODE SET Menu

(P-1)

Hi8 AUTO/OFF

- Select AUTO to set the recording mode (Hi8 or normal) automatically depending upon the tape being used.
- Select OFF if you wish to record in the normal mode regardless of the type of tape being used.

EDIT ON/OFF

- Select ON when performing editing with the camcorder as the playback VCR to keep the degradation of picture resulting from editing to the minimum.
- Select OFF otherwise.

COMMANDER ON/OFF

- Select ON when using the supplied Remote Commander for playback or editing.
- Select OFF when the supplied Remote Commander will not be used for playback or recording.

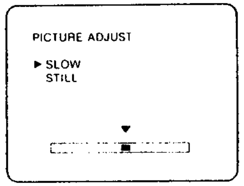
HIFI SOUND STEREO/1/2

- Normally select STEREO. The tape recorded in AFM Hi-Fi stereo will be played back in stereo.
- Select $\boxed{1}$ or $\boxed{2}$ to play back the desired sound of the dual sound recorded tape.

Note

Always return the setting to STEREO. Otherwise, the tape recorded in stereo will not be played back properly.

(P-2)


PICTURE ADJUST
▶ SLOW
STILL

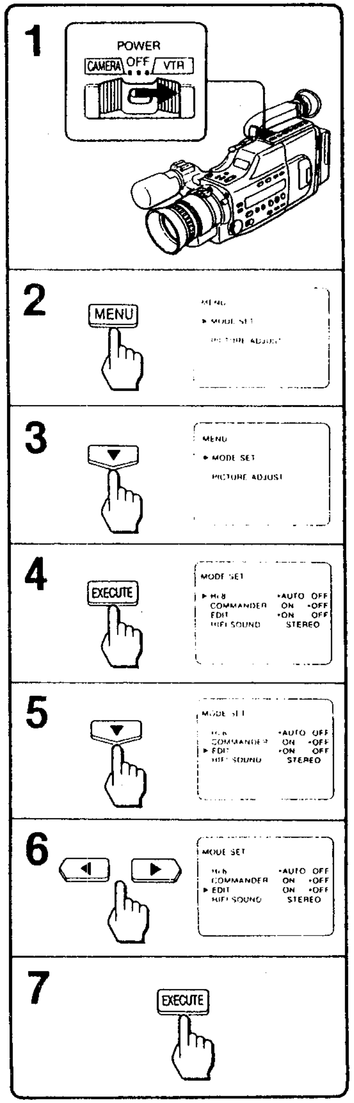
PICTURE ADJUST Menu

(P-2)

SLOW
Press ◀ or ▶ to clear out the noise bands that may appear on the top or bottom of the picture during slow playback. Adjustable only in the slow playback mode.

STILL
Press ◀ or ▶ so that the vertical shaking of the picture during still mode will stop. Adjustable only in the still mode.

(P-3)


1
POWER
CAMERA OFF VTR
2
MENU
MENU
▶ MODE SET
PICTURE ADJUST
3
4
EXECUTE
MODE SET
▶ Hi8 •AUTO OFF
COMMANDER ON •OFF
EDIT •ON OFF
HiFi SOUND STEREO
5
6
7
EXECUTE

How to Call Up the Menu Display

Press the DATA SCREEN button to display the menu on the TV screen.
(P-3)
Example: To select EDIT OFF.

1. **Set the POWER switch to VTR and insert a cassette.**
2. **Press the MENU button.**
   The MENU display appears.
3. **Press ▼ and move cursor to the desired item.**
4. **Press the EXECUTE button.**
   The selected menu appears.
5. **Press ▼ and move cursor to the desired item.**
6. **Press ◀ or ▶ to select the desired setting.**
7. **Press the EXECUTE button.**
   The setting is stored in the camcorder and the menu display is cleared.

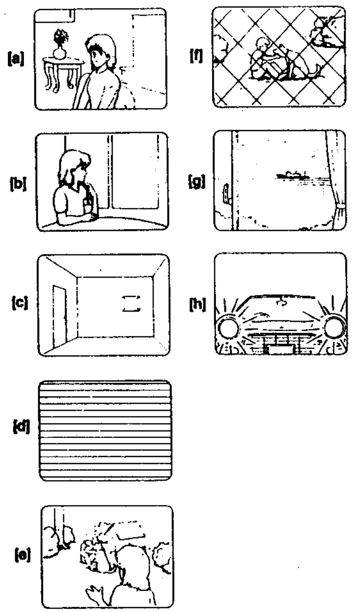
The setting is stored in the memory even if the POWER switch is returned to OFF or the battery pack is removed, as long as the lithium battery is installed.

To display another menu
Start from step 1 in "How to Call Up the Menu Display."

To return to the original screen without storing the setting
Press the MENU button instead of EXECUTE.

To make multiple settings within one menu
After step 6 in "How to Call Up the Menu Display", press ▼ and move cursor to the desired item.

(Q-1)



Manual Focusing

When the AUTO LOCK switch is set to AUTO LOCK, the auto-focusing functions to easily get a in-focused picture under most shooting conditions. But manual focusing is recommended under the following cases:

[a] to [i] corresponds to the illustrations. **(Q-1)**

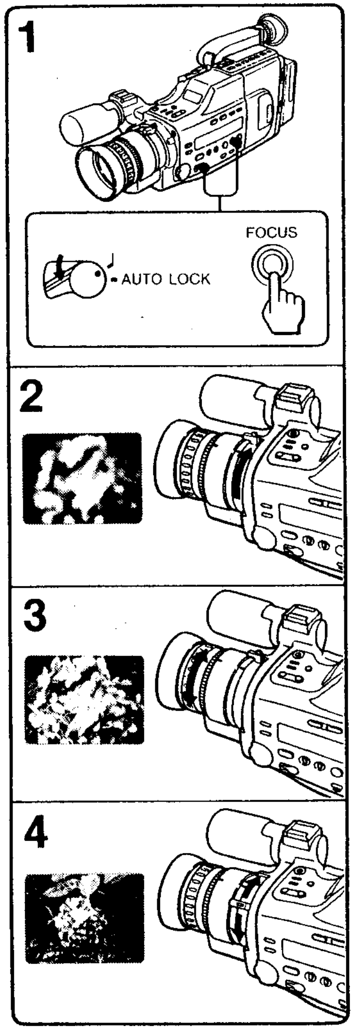
[a] Insufficient light
[b] Strong illumination from behind the object
[c] Objects with little contrast such as a wall, sky, etc.
[d] Finely detailed repetitive patterns, horizontal stripes, diagonal subject
[e] One object is close and the other is at a distance but is in the center
[f] Objects beyond nets, or another object passes just in front of the camcorder
[g] Object beyond frosted glass
[h] Bright object or object reflecting light
[i] Under special shooting conditions:
- When using conversion lenses or effect filters
- When shooting close-ups
- When shooting a stationary objects using a tripod
- To prevent battery wear

Note on automatic focusing
While recording with the auto focusing function, do not touch the focus ring forcibly.

When the auto focusing does not function momentarily
- Shutter speed setting is changed.
- Programmed AE mode is changed.
- Aperture value is changed.
- Gain setting is changed.
- Lighting condition change quickly.
- Zooming from wide to telephoto.
- The camcorder is rapidly panned from a distant subject to a nearby subject with less contrast.
- Shooting fast moving objects.

Some helpful hints
- When shooting relatively dark places, such as indoors, the depth of field in proper focus is very shallow.
- When shooting with auto focusing with the zoom lever set to the wide angle position, the focus ring will be fixed around the 2 m position and may not exactly match the actual object-to-camera distance.
- The figures on the focus ring indicate the distance between the object and the Φ mark on the camcorder.

(Q-2)



Focusing Manually

(Q-2)

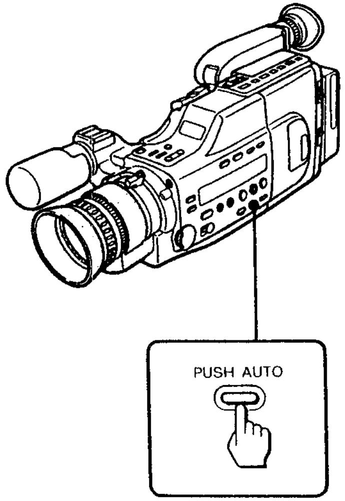
1. **Set the AUTO LOCK switch down and press the FOCUS button.**
   Check that the auto focus frame is cleared from the viewfinder.

2. **Turn the manual zoom lever fully to the telephoto position.**

3. **Turn the focus ring to achieve sharp focus.**

4. **Move the zoom lever to set to the desired shot length.**

(Q-3)



Shooting with Auto Focusing Momentarily

(Q-3)

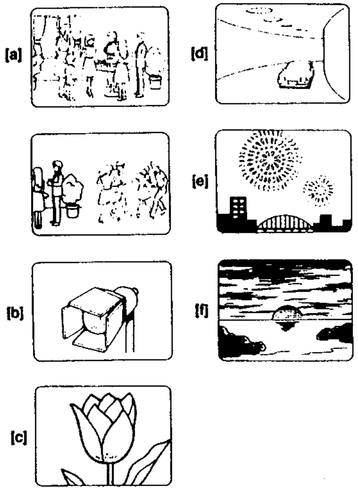
While shooting with manual focusing, press the PUSH AUTO button.
The auto focus functions while you are pressing the PUSH AUTO button.

When the button is released, manual focusing will resume. Use this button when focusing on one object to the other for natural focusing. Shutter speed, white balance, gain, aperture, and/or programmed AE modes will be retained to the previous setting.

When the camcorder focuses on the background during auto focusing
To focus on the subject on the foreground, first shoot the subject on the foreground or set the focus ring to 1.3 m manually. Then set the AUTO LOCK switch to AUTO LOCK or press the PUSH AUTO button.

When the camcorder focuses on the foreground during auto focusing
To focus on the background, first shoot the distant view or set the focus ring to ∞ manually. Then set the AUTO LOCK switch to AUTO LOCK or press the PUSH AUTO button.

(R-1)

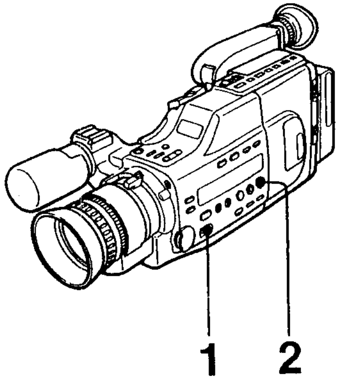


Adjusting the White Balance

In order to record the color of the object as it is, the common method is to adjust the camcorder to record the white color as white in various shooting conditions. This is accomplished by adjusting the white balance. When the AUTO LOCK switch is set to AUTO LOCK, the auto white balance functions adjust the white balance under most shooting conditions. But to record the color of the subject more precisely, without being affected by the color temperature of the ambient light, adjust the white balance manually.

[a] to **[f]** corresponds to the illustrations. **(R-1)**

	Conditions	Indication in the viewfinder
[a]	Lighting conditions change quickly	💡
[b]	Too bright, such as in photograph studios	
[c]	Monochromatic subject or background	▪
[d]	Under a sodium lamp	💡
	Under a mercury lamp	
	Under a color matching fluorescent lamp	☀
[e]	Recording outdoors: a night view, neon signs, or fireworks	
[f]	Recording outdoors: scenes after sunset or before sunrise	



Adjusting the White Balance Manually

(R-2)

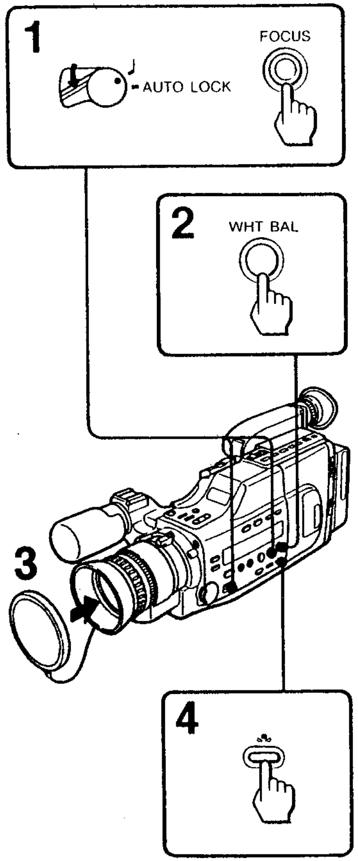
1 **Set the AUTO LOCK switch down.**

2 **Set to the appropriate white balance mode by pressing the WHT BAL button.**
The indication changes in the order below each time the button is pressed.

No indication → ▪ → ☀ → 💡
↑ (auto)

Note on manual white balance adjustment
Each time the shooting conditions changes, for example when moving from indoors to outdoors or vice versa, the white balance should be reset to the new lighting condition. First, set the AUTO LOCK switch down. Then return it to AUTO LOCK again for auto white balance adjustment.

(R-3)



Adjusting the White Balance Precisely

(R-3)

The one-push white balance function adjusts the white balance at the press of the button and maintains that condition. When the lighting condition changed or when recording subjects with different color temperature, use the one push white balance function to achieve recording with natural colors without being affected by the ambient light.

1. **Set the AUTO LOCK switch down and press the FOCUS button.**
   The camcorder enters the manual focus mode.
2. **Press the WHT BAL button to call up the ▣ indication.**
   The ▣ indication is blinking slowly.
3. **Attach the white lens cap to the camcorder and point the it to a subject (outdoors) or to the light source (indoors).**
4. **Press the ▣ button in the recording standby mode.**
   The ▣ indication will blink rapidly.
5. **The ▣ indication stops blinking to indicate that the new white balance is stored in the memory.**
   The memory is retained for approximately 1 hour even if the POWER switch is set to OFF or if the battery pack is removed.

When recording under fluorescent light
- Press the WHT BAL button to clear the white balance indication and return to automatic white balance adjustment.
- Use the one push white balance function.
- Set the AUTO LOCK switch to AUTO LOCK.

(R-4)

Color temperature (K)		Light source
	10 000	Clear sky
	8 000	
Blue		Slightly overcast
	7 000	Cloudy, rainy
	6 000	Flourescent lamp (daylight)
	5 000	
White		Direct sunlight
		Fluorescent lamp (daylight)
	4 000	1 hr. after/before sunrise/sunset
	3,500	Fluorescent lamp (off white)
		Studio lamp
		Halogen lamp
	3 200	
	3 000	
Yellow		Tungsten lamp
	2 500	30 min. after/before sunrise/sunset
Red		
	2000	Sunrise/sunset
		Candlelight

White Balance and Color Temperature

(R-4)

The color temperature indicates the relative reddishness or bluishness of light measured in Kelvin degrees (K). It increases as the light source gets bluish and decreases as the light source gets redder. It has no direct relation with brightness of the light. The camcorder automatically adjusts the white balance within the range shown in the diagram on the left.

What the ▣ indication mean
- Slow blinking: white balance not adjusted
- Fast blinking: white balance being adjusted by the ▣ button
- Stops blinking: white balance adjusted

When the ▣ indication does not stop blinking
The white balance cannot be adjusted and the ▣ indication does not stop blinking.
- When the camcorder was pointed to an object that was not white.
- When white balance adjustment was attempted without the white lens cap.

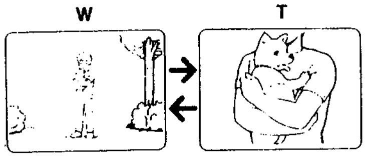
In these cases, point the camcorder to a bright light source or point the camcorder to a white object.

If the ▣ indication still does not stop blinking
- Press the WHT BAL button to clear the white balance indication and return to automatic white balance adjustment.
- Set the AUTO LOCK switch to AUTO LOCK.

When the lighting condition changed
- Readjust the white balance by the ▣ button during the recording standby mode. The ▣ button does not function during recording.
- The white balance adjustment is effected by the setting of the aperture and shutter speed. When the aperture or shutter speed is adjusted manually, and the camcorder was move from indoors to outdoors or vice versa, the white balance setting may not be correct. In this case, set the AUTO LOCK switch to AUTO LOCK again and readjust the white balance automatically.

Zooming

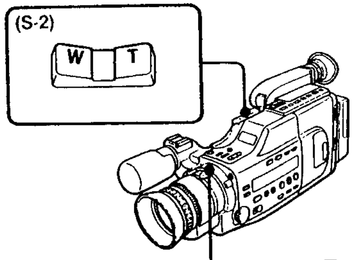
(S-1)



(S-1)

The size of the subject in the screen can be changed. Use "zoom-in" for dramatic close-ups and "zoom-out" for panoramic long shots. Also, use zooming during manual focusing. The camcorder's zoom button offers a variable speed zooming; pressing it firmly for high speed zooming and softly for relatively slow zooming.

Power Zooming — for Smooth and Constant Zooming

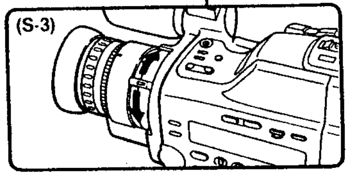


(S-2)

Press the T side of the power zoom button for telephoto.
This gives a close up shot of an object far from the lens.

Press the W side of the power zoom button for wide.
This gives a broad view of the scene.

Manual Zooming — to Create a Dramatic Effect



(S-3)

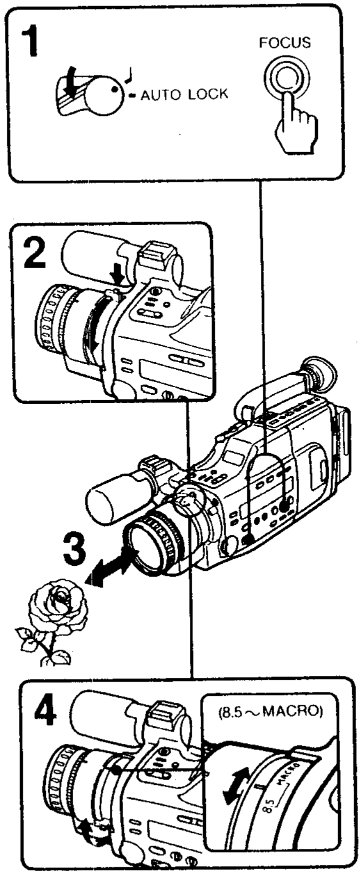
Turn the manual zoom lever upward for telephoto and downward for wide.

Focal length of this camcorder
The focal length is 8.5 mm to 68 mm (11/32 to 2 3/4 inches). This is approximately 46 mm to 367 mm (1 7/8 to 14 1/2 inches converted to the focal length of a 35 mm camera.

Using the zoom button on the Commander
Variable speed zoom cannot be operated with the zoom button on the Commander.

Close-up (Macro)

(T-1)



Tiny objects such as flowers, insects, and images in photographs, can literally fill the screen using the close-up function. It is also useful when recording a title.

(T-1)

1 **Set the AUTO LOCK switch down and press the FOCUS button.**
Check that the auto focus frame is cleared from the viewfinder.

2 **Turn the zoom lever, while pressing the green MACRO button, to the left as far as it will go into the MACRO range.**

3 **Bring the camcorder as close as necessary to the subject to obtain the desired subject size.**
The subject can be as close to the lens surface at approximately 10 mm (13/32 inch).

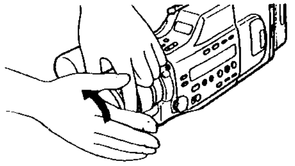
4 **Turn the zoom lever within the MACRO range to focus sharply.**

Notes
- Auto focusing does not function in macro shooting.
- If the object is closer than 10 mm (13/32 inch), it cannot not be brought in focus.

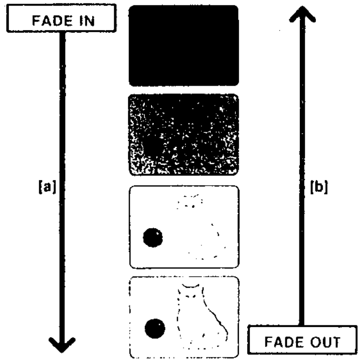
If the lens hood touches the object (T-2)
Remove the lens hood. Hold the focus ring and turn the hood by pressing it with your palm. Do the same when attaching or removing the filter or conversion lens (not supplied).

Recommended accessory
When shooting in macro, the depth of field is very shallow. Pay attention to focusing. To keep the object in focus, use a tripod.

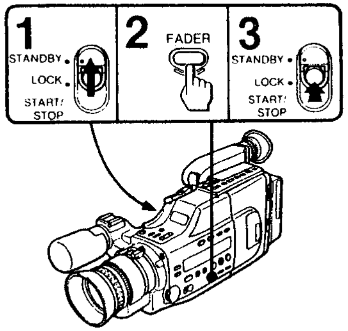
(T-2)



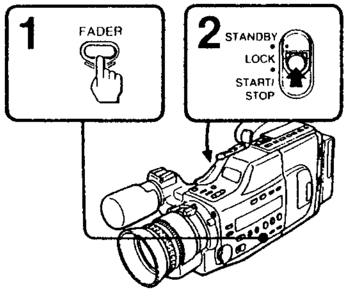
(U-1) (U-2)



(U-3)



(U-4)



Fade-in and Fade-out

When fading-in, the picture will gradually appear from a black screen. The sound will gradually increase in accordance with the picture. **(U-1)**
When fading-out, the picture will gradually disappear into a black screen. The sound will gradually decrease in accordance with the picture. **(U-2)**
Use this function to give a professional effect to your recording.

To Fade-in

(U-3)

1 **Slide the STANDBY switch up.**
The camcorder enters the recording standby mode.

2 **Press the FADER button.**

3 **Press the START/STOP button.**
Fade-in is performed and recording starts.

To Fade-out

(U-4)

1 **Press the FADER button while recording.**

2 **Press the START/STOP button to stop recording.**
Fade-out is performed and then recording stops.

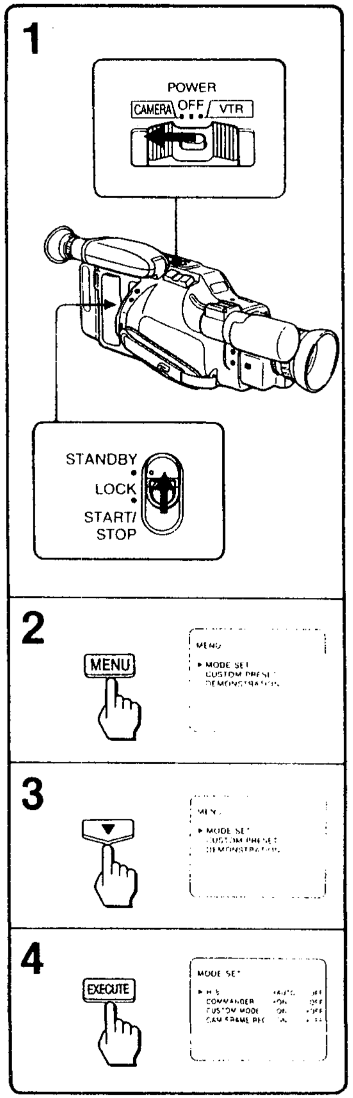
When does the FADER function work
The FADER function works only when the camcorder is in the recording standby mode or recording mode.
It does not function in the stop mode.

To cancel the faade-in/fade-out function before it is preformed
Press FADER before pressing START/STOP.

To use the fade-in/fade-out function repeatedly
Start from step 1 each time.

When the title, date or time is displayed
The title, date or time does not fade-in or fade-out.

(V)



Frame Recording

(V)

A recording of approximately 4 frames can be performed with this camcorder. With this function, an animated effect can be recorded by performing frame recording after moving the subject little by little. Fix the camera at one point and use the Commander for effective frame recording.

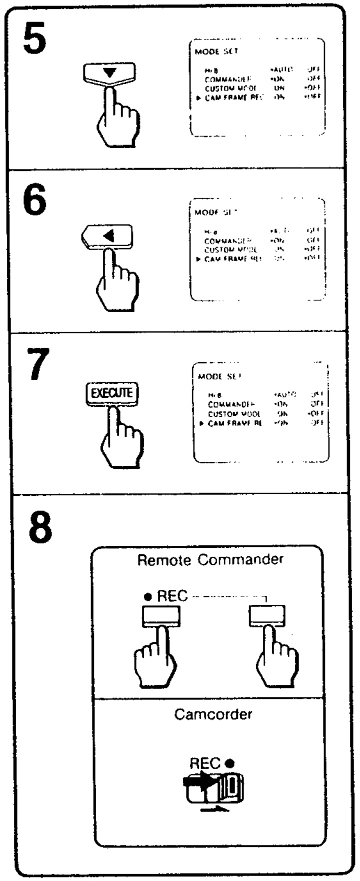
1 **Set the POWER switch to CAMERA and slide the STANDBY switch up.**

2 **Press the MENU button.**

3 **Press ▼ and move cursor to MODE SET.**

4 **Press the EXECUTE button.**
MODE SET menu appears.

Continued on the next page



5 **Press ▼ and move cursor to CAM FRAME REC.**

6 **Press ◄ or ► and select ON.**
When performing frame recording using the Remote Commander, select COMMANDER ON.

7 **Press the EXECUTE button.**
The setting is stored in the memory and the menu display in the viewfinder disappears.

8 **Start camera recording with the camcorder or the Remote Commander.**
Recording of approximately 4 frames is performed. After frame recording is completed, the camcorder will enter the recording standby mode with STBY indication in the viewfinder.

9 **Move the subject and repeat step 8.**

To Record Input Signals from the VIDEO, AUDIO, S VIDEO Jacks

1 Connect the camcorder and the external video source referring .
2 Set the POWER switch to VIDEO.
3 Set the camcorder to the recording pause mode with ○ REC and PAUSE.
4 Repeat step 8 above.

Recording a Title

(W-1)

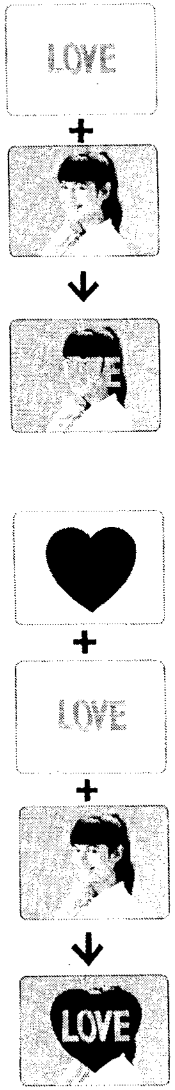
Original hand-lettered message or illustration can be superimposed over the picture. Two titles can be stored and 8 different colors can be used for the titles.

This function can be used during the following situations.

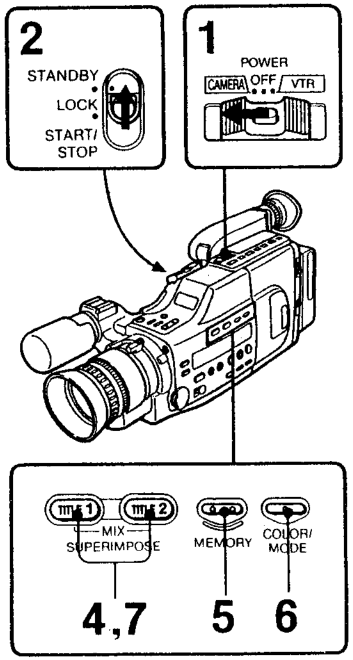
(1) During camera recording.
(2) During playback.
(3) During camera recording, superimpose a title.
Then superimpose different titles during playback.
(4) During editing, use the camcorder as a playback VCR. Titles can be superimposed over the playback picture (with or without a title superimposed) and then recorded together onto the recording VCR.

Before recording, store the desired title in the camcorder.

(W-1)



(W-2)



Storing a Title

(W-2)

Before storing

- Prepare title cards.
  Use a plain, white card and draw titles with in dark color and thick lines. Street signs and printed materials with high contrast can be used as a title.
- Install the lithium battery (page 27).
  The titles cannot be kept in the memory unless the lithium battery is installed.

Operation

1. **Hold down the green button and slide the POWER switch to CAMERA.**
2. **Slide the STANDBY switch up.**
   The camcorder enters the recording standby mode.
3. **Point the camcorder to the title card and adjust the focus.**
   To focus on the title, use the macro function. (page 71).
4. **Press the TITLE 1 or TITLE 2 button.**
5. **Press the MEMORY button.**
   The title is stored to the button pressed in step 4.
6. **Press the COLOR/MODE button to select the color of the title.**
   Each time you press the button, the indication changes as follows.

   WHT (white) → BLUE → GRN (green) → CYAN
   ↑ ↓
   BLK (black) ← YEL (yellow) ← VIO (violet) ← RED

7. **Press the TITLE 1 or TITLE 2 button, whichever was pressed in step 4, to clear the title from the viewfinder.**
   The title is stored in the memory until you store another one over it.

To check the title

Press the TITLE 1 or TITLE 2 button, whichever was pressed in step 4, in the standby mode. To clear the title from the viewfinder, press the same button again.

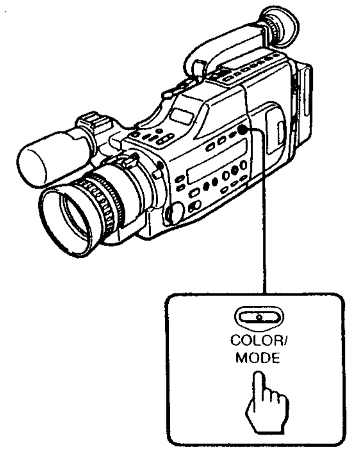
To store a new title

Repeat steps 1 to 7. A new title is stored and the previous title will be deleted.

When storing a title in the memory

When a cassette is installed, the camcorder will return to the power off mode after 5 minutes. Take out the cassette if more than 5 minutes will be needed to store the title.

(W-3)



Function of the COLOR/MODE Button

(W-3)

The COLOR/MODE button works in two ways. When a title is displayed in the viewfinder, the color of the title can be changed. When the title is not displayed, the title display mode can be changed.

To select the color

1 **Press the TITLE 1 or TITLE 2 button to display the title.**

2 **Press COLOR/MODE.**
Each time the button is pressed, the color indication changes as follows.

WHT (white) → BLUE → GRN (green) → CYAN
↑ ↓
BLK (black) ← YEL (yellow) ← VIO (violet) ← RED

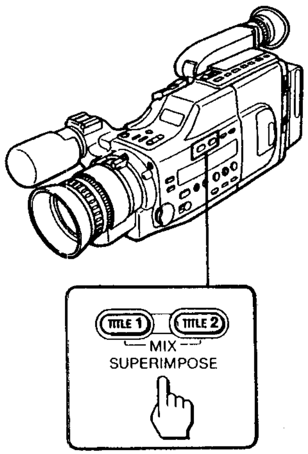
To select the display mode

1 **If the title is displayed, press TITLE 1 or TITLE 2 button to clear the title.**

2 **Press COLOR/MODE.**
Each time the button is pressed, the mode indication changes as follows.

↑: Scroll up the title.
↓: Scroll down the title.
■: Reverse the title.
■↑: Reverse the title and scroll it up.
■↓: Reverse the title and scroll it down.

(W-4)



Superimposing One Title

(W-4)

1 **During playback or recording, press the TITLE 1 or TITLE 2 button at the point from which you want to use the title.**
The title is displayed. During recording the title will be recorded on to the tape. During playback the title will not be recorded on the tape.

2 **Press the same button pressed in step 1 at the point you wish to clear the title.**

When recording the title at the beginning
We recommend the following method:

1 **Set the camcorder in the standby mode.**

2 **Display the title referring to step 1 above.**

3 **Release the standby mode.**

4 **Clear the title referring to step 2 above.**

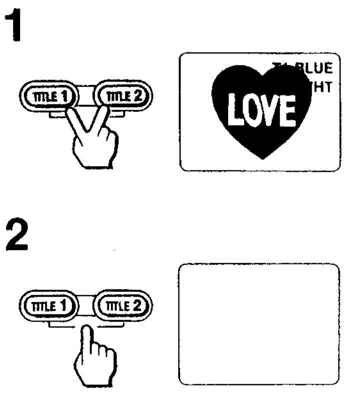
When recording a title onto the playback picture
The title can be superimposed on the playback picture but cannot be recorded with this camcorder alone. Make connections for editing and record the picture with title superimposed on another VCR.

About the color indication

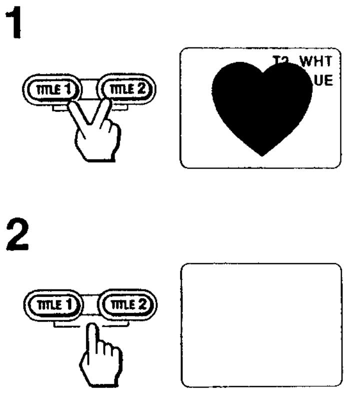
- The color indication in the viewfinder is not recorded.
- Even after the title is displayed, the color can be changed by pressing the COLOR/MODE button.

When displaying the title in the playback mode
The title is cleared if you press ◀◀ or ▶▶.

(W-5)


1
TITLE 1
TITLE 2
LUE
HT
LOVE
2
TITLE 1
TITLE 2

(W-6)


1
TITLE 1
TITLE 2
T2 WHT
UE
2
TITLE 1
TITLE 2

Layering One Title over the Other

The title stored in the TITLE 1 button and the TITLE 2 button can be displayed at the same time with one title layered on the other.

Example: When a blue heart is stored in the TITLE 1 button and a white title "LOVE" is stored in the TITLE 2 button.

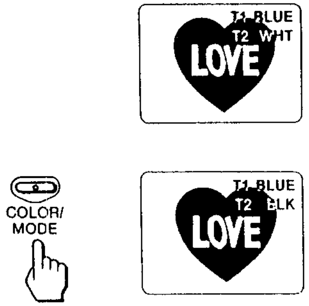
To display TITLE 1 in the background and TITLE 2 in the foreground
(W-5)

1. **During playback or recording, hold down the TITLE 1 button and press the TITLE 2 button.**
2. **Press the TITLE 1 or TITLE 2 button at the point you wish to clear the title.**

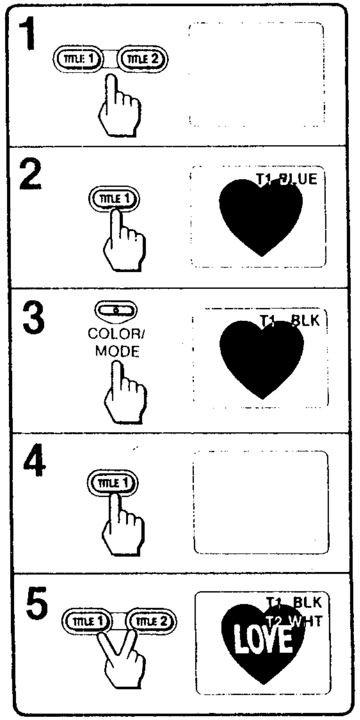
To display TITLE 2 in the background and TITLE 1 in the foreground
(W-6)

1. **During playback or recording, hold down the TITLE 2 button and press the TITLE 1 button.**
   In this case, TITLE 2 "LOVE" is hidden behind TITLE 1 and is not showing. Before using this function, check whether the title stored in the memory is appropriate for this application.
2. **Press the TITLE 1 or TITLE 2 button at the point you wish to clear the title.**

(W-7)


T1 BLUE
T2 WHT
LOVE
COLOR/
MODE
T1 BLUE
T2 BLK
LOVE

(W-8)


1
TITLE 1
TITLE 2
2
TITLE 1
T1 BLUE
3
COLOR/
MODE
T1 BLK
4
TITLE 1
5
TITLE 1
TITLE 2
T1 BLK
T2 WHT
LOVE

To Change the Color of the Title after Layering One Title over the Other

Example: When a blue heart is stored in the TITLE 1 button and a white title "LOVE" is stored in the TITLE 2 button.

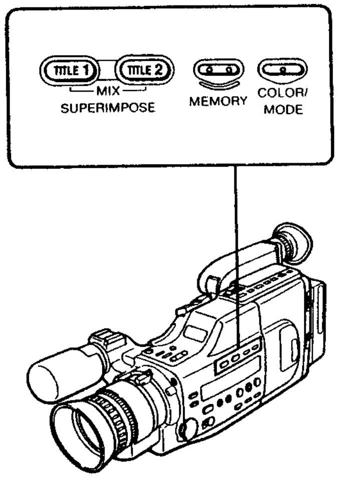
To change the color of the title in the foreground
(W-7)

Press the COLOR/MODE button.
Each press of COLOR/MODE will change the color of "LOVE".

To change the color of the title in the background
(W-8)

1. **Press the TITLE 1 or TITLE 2 button to clear the title.**
2. **Press the TITLE 1 button.**
   TITLE 1, blue heart, is displayed.
3. **Press the COLOR/MODE button to change the color of TITLE 1.**
   The color of TITLE 1, blue heart, changes.
4. **Press the TITLE 1 button.**
   TITLE 1, black heart, is cleared from the picture frame.
5. **Hold down the TITLE 1 button and press TITLE 2.**

(W-9)



Various Title Display Modes

Follow the steps below to enjoy the various title display modes.

(W-9)

Step 1
During camera recording or playback, press the COLOR/MODE button to select the title display modes. Refer to the following page for the available modes.

Step 2
Call up the title.

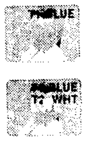
To display one title:
Press the TITLE 1 or TITLE 2 button.
To layer one title over the other:
Call up the title referring to page 00.

Step 3
Clear the title.

When one title is displayed:
Press the same button pressed in step 2.
When one title is layered over the other:
Press the TITLE 1 or TITLE 2 button.

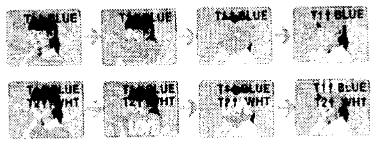
Title display modes
Each press of the COLOR/MODE button in step 1 changes the title display modes in the following order.

(W-10)



- **Normal title display (W-10)**

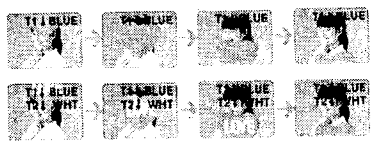
(W-11)



- **Scrolling up the title (W-11)**

Step 1: The ↑ indication is displayed.
Step 2: The title is scrolled upwards to the center and stops.
Step 3: The title is scrolled up and out of the picture frame.

(W-12)



- **Scrolling down the title (W-12)**

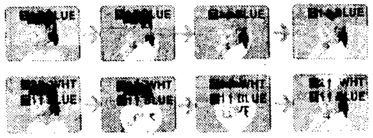
Step 1: The ↓ indication is displayed.
Step 2: The title is scrolled downwards to the center and stops.
Step 3: The title is scrolled down and out of the picture frame.

(W-13)

- **Reversing the title with the picture (W-13)**

Step 1: The ■ indication is displayed.
Step 2: The reversed title is displayed.
Step 3: The title is cleared from the picture frame.

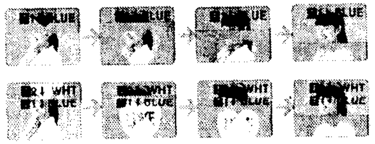
(W-14)



- **Scrolling up the reversed title (W-14)**

Step 1: The ■↑ indication is displayed.
Step 2: The reversed title is scrolled upwards to the center.
Step 3: The reversed title is scrolled up and out of the picture frame.

(W-15)



- **Scrolling down the reversed title (W-15)**

Step 1: The ■↓ indication is displayed
Step 2: The reversed title is scrolled downwards to the center.
Step 3: The reversed title is scrolled down and out of the picture frame.

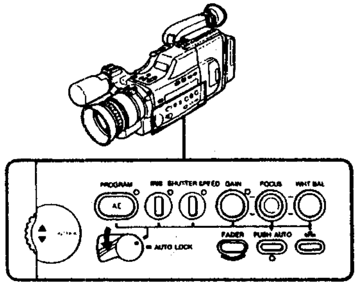
When displaying one title over the other

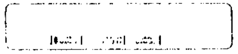
- TITLE 1 and TITLE 2 cannot be called up in the different title display mode at the same time. For example, calling up TITLE 1 in the reverse mode and TITLE 2 in the scroll up mode at the same is not possible.
- When scrolling the two titles layered, press the second title button before the first title starts to scroll.

Note on scrolling
You can scroll the title only when the camcorder is in the recording standby, recording, or normal playback mode. Only normal title display mode (no indication) and reverse title display mode (■) can be performed during modes other than the three above. (Refer to "Various Playback Modes" on page 48.) If you select the scroll mode first, and then set the camcorder to the modes other than the three above, the scroll mode will be canceled automatically.

Recording a Picture Using Programmed AE and Manual Modes

(X-1)



Viewfinder	Display window
(X-2)	
(X-3)	
(X-4) Example AE A 500 ▸ F8	Example
(X-5) Example AE S ▸ 500 F8	Example
(X-6) The selected parameters displayed Example 250 ▸ F4 0 dB	Example 

(X-1)

A variety of camera recording modes can be selected for this camcorder, from the full automatic mode to the programmed AE mode in which camera recording modes most suited for the subject and/or the condition is adjusted automatically. In addition, the manual mode enables independent setting of the aperture value, shutter speeds, and gain. Setting of a single parameter or a combination of two or three parameters at one time is possible.

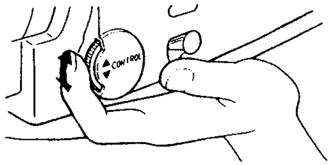
Camera Recording Modes Available

With the AUTO LOCK switch set down, each press of the PROGRAM AE button changes the camera recording mode as follows.

→ Portrait	(X-2)
↓ Sport	(X-3)
↓ Aperture priority	(X-4)
↓ Shutter priority	(X-5)
↓ Manual	(X-6)

During programmed AE and manual modes
Focus and white balance can be adjusted independently from the programmed AE mode or the manual mode. Manual adjustment of focus and white balance is recommended.

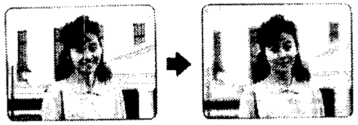
(X-7)



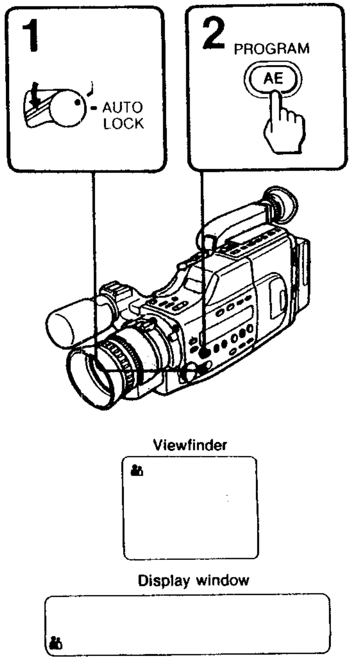
How to use the CONTROL dial (X-7)
Move the dial slowly using the tip of your index finger. If the dial is released immediately after holding it to the maximum position, the sound of the dial returning to the normal position may be recorded.

When recording in the aperture priority mode or the manual mode
Do not point the lens at the sun or other light sources when the aperture value is set to F1.4.

(Y-1)



(Y-2)



Portrait Mode

(Y-1)
In the portrait mode, the subject is in focus and the background is out of focus. The aperture (opening of the iris) and the shutter speed is automatically adjusted to maintain the appropriate exposure according to the size and brightness of the subject. The portrait mode is most effective when used outdoors.

Portrait Mode Applications

- To shoot a subject with not much movement, such as a portrait of a person or a close up of a flower.
- To zoom in a subject with the telephoto mode.
- To shoot a subject with an obstruction in the foreground.

Operation

(Y-2)

1 **Set the AUTO LOCK switch down.**

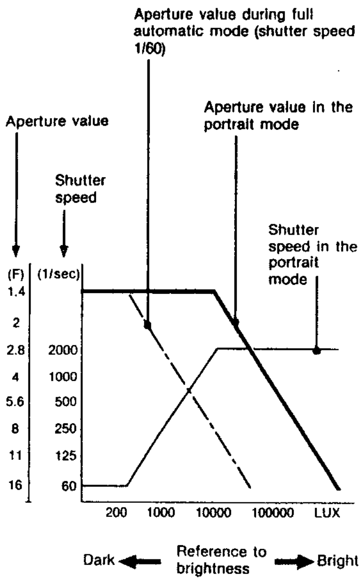
2 **Press the PROGRAM AE button until the 👤 indication is displayed in the viewfinder and the display window.**
The camcorder enters the portrait mode.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the portrait mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the portrait mode
Focus and white balance can be adjusted manually. See page 64 (focus) and page 67 (white balance) for details.

(Y-3)



Hint for effective camera work

Use of the portrait mode with the following method will gradually make the background out of focus while keeping the subject in focus.

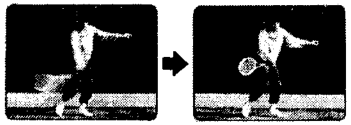
1. **Enter the portrait mode referring to page 87.**
2. **Set the AUTO LOCK switch to AUTO LOCK and start recording.**
3. **Set the AUTO LOCK switch down.**
   The camcorder will enter the portrait mode and make the background out of focus.

The theory of the portrait mode
(Y-3)

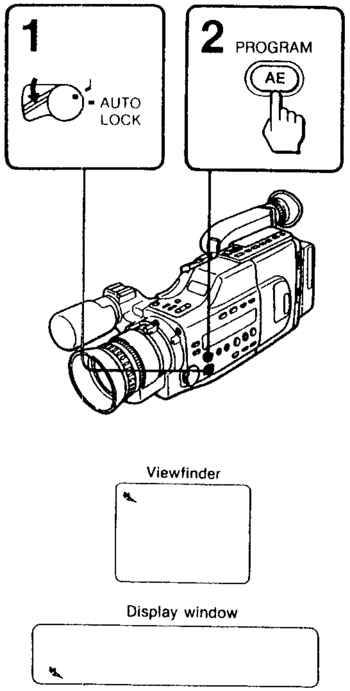
When shooting outdoors under bright sunlight in the full automatic mode, the aperture tends to close and both the subject and the background comes into focus (deep depth of field). This is a result of excessive light. In order to bring the subject in focus and keep the background out of focus (shallow depth of field), the aperture should be opened. In the portrait mode, the aperture is controlled to open by automatically selecting the shutter speed (between 1/60 to 1/2000 that matches the shooting situation) to maintain the appropriate exposure.

When recording under fluorescent, sodium, or mercury lamps
- The brightness of the recorded picture may flicker.
- The color of the recorded picture may vary.

(Z-1)



(Z-2)



Sports Mode

(Z-1)

By recording in the sports mode, a subject moving at high speed can be recorded and the picture can be observed more clearly with less picture shaking in the still or slow mode compared to the full automatic mode. The shutter speed and the aperture is automatically adjusted to maintain the appropriate exposure according to the speed of the subject.

Sports Mode Applications

- To shoot outdoor sports scenes, such as football, tennis, and golf.
- To shoot the scenery from inside a moving automobile.

Operation

(Z-2)

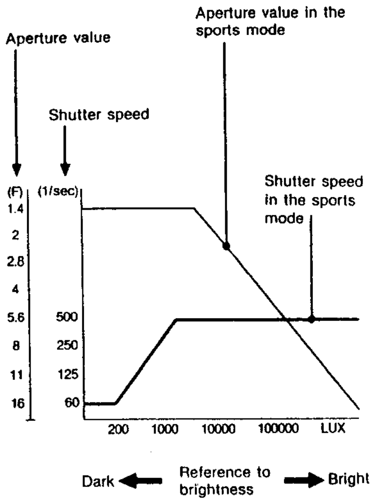
1. **Set the AUTO LOCK switch down.**
2. **Press the PROGRAM AE button until the 🏃 indication is displayed in the viewfinder and the display window.**
   The camcorder enters the sport mode.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the sports mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the sports mode
Focus and white balance can be adjusted manually. See page 64 (focus) and page 67 (white balance) for details.

(Z-3)



Hint for effective camera work

When shooting athletic matches from a distance, such as a football game, we tend to zoom from the wide to the telephoto position to catch the once-only events. Even under these circumstances, by using the sports mode, a sharp picture without camera wobble can be obtained when played back later in the slow or still mode.

The theory of the sports mode
(Z-3)

When the shutter speed is shifted to a faster speed, subjects moving at high speed, such as a tennis racket or golf club, can be recorded and then played back clearly with less picture shaking compared to the full automatic mode. With this camcorder, the shutter speed can also be set independently from the aperture. However, the picture may become dark when the lighting condition is insufficient. In the sports mode, the fastest shutter speed that matches the shooting situation (between 1/60 and 1/500) is selected to maintain the appropriate exposure.

Note

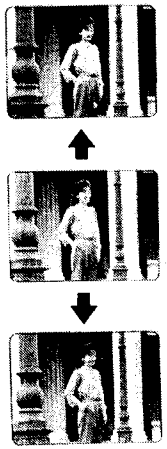
- The sports mode is effective under sufficient lighting, such as under sunlight. When used under extremely dark conditions, the shutter speed may not be shifted to high speeds.

When recording under fluorescent, sodium, or mercury lamps

- The brightness of the recorded picture may flicker.
- Te color of the recorded picture may vary.

Aperture Priority Mode

(a-1)



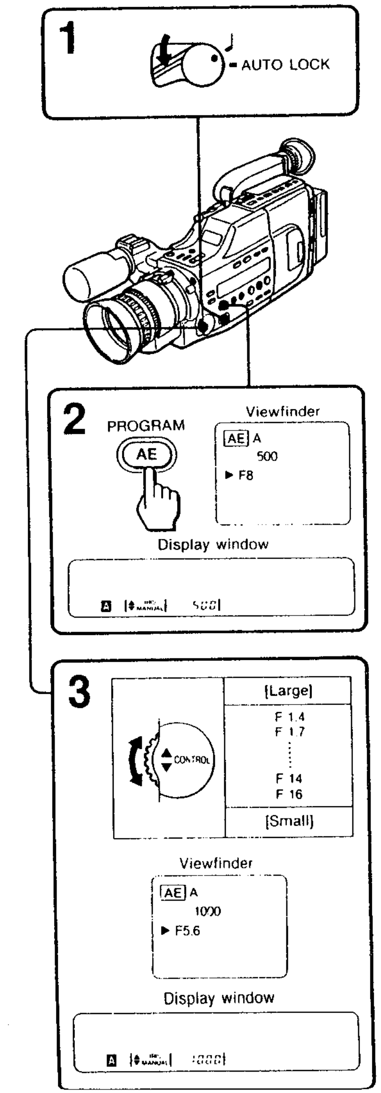
(a-1)

The aperture priority mode enables to select the aperture which determines the depth of field. 15 aperture values, from F 1.4 to F16. can be selected. The shutter speed is automatically set (between 1/60 to 1/2000) in combination with the aperture value to maintain the appropriate exposure.

Aperture Priority Application

To shoot the picture with different depths of field.

(a-2)



Operation

(a-2)

1 Set the AUTO LOCK switch down.

2 Press the PROGRAM AE button until the AE A indication is displayed in the viewfinder and the display window.
The camcorder enters the aperture priority mode.

3 Move the CONTROL dial to set to the desired aperture value.
The selectable aperture values are:
F1.4, F1.7, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9.6, F11, F14, F16

The shutter speed indication corresponds to the change of the aperture value.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the aperture priority mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the aperture priority mode
Focus and white balance can be adjusted manually.
See page 64 (focus) and page 67 (white balance) for details.

Hints for effective camera work

- **Understanding the depth of field**
The depth of field is the area in which the objects are in focus. A shallow depth of field shows the subject in focus and the background out of focus. The greatest depth of field shows everything in focus.

- **Depth of field and aperture value**
A large aperture provides a shallow depth of field and a small aperture provides a deep depth of field.

- **Depth of field and object-to-camera distance**
When the object-to-camera distance is near, the depth of field will be shallow. When the object-to-camera distance is far, the depth of field will be great.

- **Depth of field and zooming**
The depth of field will be shallow in the telephoto position. The depth of field will be great in the wide position.

- **Summary**

	A shallow depth-of-field	A deep depth-of-field
Aperture	Towards open	Towards closed
Object-to-camera distance	Near	Far
Zoom	Telephoto	Wide

When the ▶ indication in the viewfinder is blinking
The lighting condition is insufficient or excessive for the aperture priority mode. In this case, move the CONTROL dial and reset the aperture.

- **Insufficient light (when the picture inside the viewfinder is dark)**
  Decrease the aperture.
- **Excessive light (when the picture inside the viewfinder is too bright)**
  Increase the aperture.

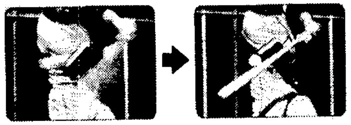
Although we recommend camera recording without the ▶ indication blinking, camera recording can be performed even when the ▶ indication is blinking. Check the picture in the viewfinder before recording.

When recording under fluorescent, sodium, or mercury lamps

- The brightness of the recorded picture may flicker.
- The color of the recorded picture may vary.

Shutter Priority Mode

(b-1)

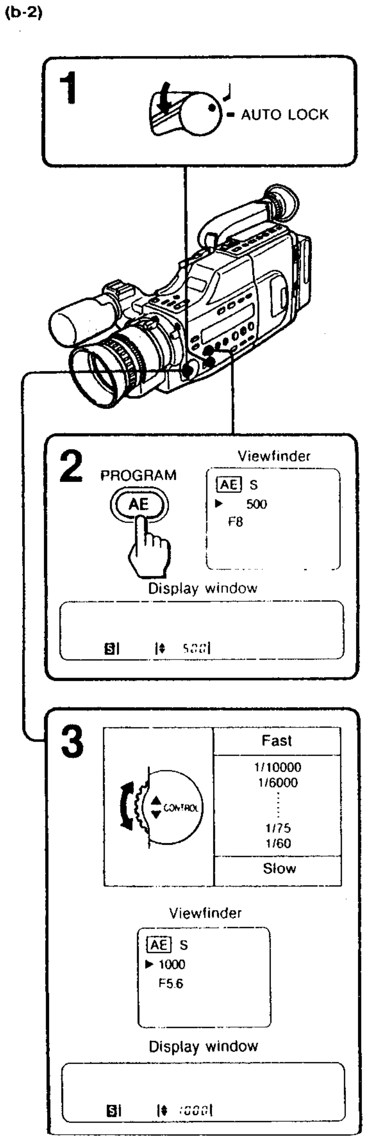


(b-1)
The shutter priority mode enables selection of the shutter speed. 27 shutter speeds can be selected from 1/60 (normal speed) to 1/10000. When a fast shutter speed is selected, subjects moving at high speed can be recorded and the picture can be observed more clearly with less picture shaking in the still or slow modes compared to slower shutter speeds. The aperture value is automatically set (between F1.4 to F16) in combination with the shutter speed to maintain the appropriate exposure.

Shutter Priority Applications

- To shoot a golf swing or a tennis match with the tennis ball captured clearly.
- When you wish playback certain scenes with high speed movements in a clear, sharp picture.

(b-2)



Operation

(b-2)

1 **Set the AUTO LOCK switch down.**

2 **Press the PROGRAM AE button until the AE S indication is displayed in the viewfinder and the display window.**
The camcorder enters the shutter priority mode.

3 **Move the CONTROL dial to set to the desired shutter speed.**
The selectable shutter speeds are:
1/60, 1/75, 1/90, 1/100, 1/125, 1/150, 1/180, 1/215, 1/250, 1/300, 1/350, 1/425, 1/500, 1/600, 1/725, 1/850, 1/1000, 1/1250, 1/1500, 1/1750, 1/2000, 1/2500, 1/3000, 1/3500, 1/4000, 1/6000, 1/10000

The aperture value indication corresponds to the change of the shutter speed.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the shutter priority mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the shutter priority mode
Focus and white balance can be adjusted manually. See page 64 (focus) and page 67 (white balance) for details.

Hints for effective camera work
Refer to the chart below for the appropriate shutter speed for the object. Check the brightness of the picture in the viewfinder.

When to use	Recommended speed
• On clear days, recording golf or tennis scenes. (To view the hit ball clearly in the slow or still mode, select shutter speeds between 1/1000 to 1/4000) • Recording the skiers.	1/10000 to 1/600
• On overcast days, recording a moving merry-go-round or a roller coaster. • Recording outdoors stably from inside a moving automobile. • General athletic scenes, marathon, etc.	1/500 to 1/125
• Used in place of the ND2 filter to reduce the exposure to approximately 1/2. • Recording indoors for stable recording.	1/100
• Recording under bright sunlight. To avoid out-of-focus pictures while recording with small aperture.	1/90 to 1/75

When the ▶ indication in the viewfinder is blinking
The lighting condition is insufficient or excessive for the shutter priority mode. In this case, move the CONTROL dial and reset the shutter speed.

Although we recommend camera recording without the ▶ indication blinking, camera recording can be performed even if the ▶ indication is blinking.
In this case, check the picture in the viewfinder before recording.

When is shutter speed 1/60 indicated?
1/60 indication is displayed only when the shutter speed is set to 1/60 using the CONTROL dial. Even though the shutter speed is set to 1/60 during the full automatic mode, the indication will not be displayed.

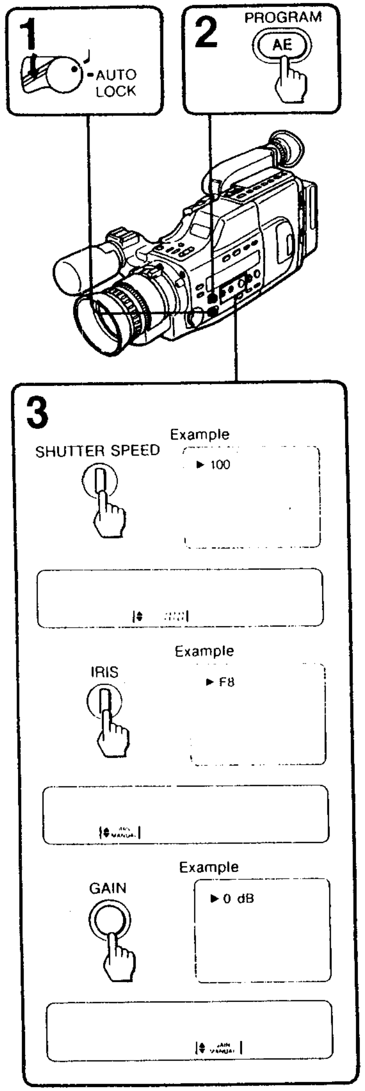
When the shutter speed is set 1/250 or faster
Try to shoot under sunlight outdoors, and with the video light indoors.

When shooting a very bright object
A vertical band (smear) may appear on the screen if shot at high speeds.

When the shutter speed is changed when shooting a TV screen
The brightness of the recorded picture may vary.

When recording under fluorescent, sodium, or mercury lamps
- The brightness of the recorded picture may flicker.
- The color of the recorded picture may vary.

(c-1)



Manual Mode

In the manual mode, independent setting of the aperture value, shutter speeds, and gain can be performed. Setting of a single parameter or a combination of two or three parameters at one time is possible.

Setting One Parameter

(c-1)

1 **Set the AUTO LOCK switch down.**

2 **Press the PROGRAM AE button until nothing is indicated in the upper left hand corner of the viewfinder.**
The camcorder enters the manual mode.

At this point, the shutter speed is set to 1/60, the aperture and gain are automatically adjusted to the shooting condition.

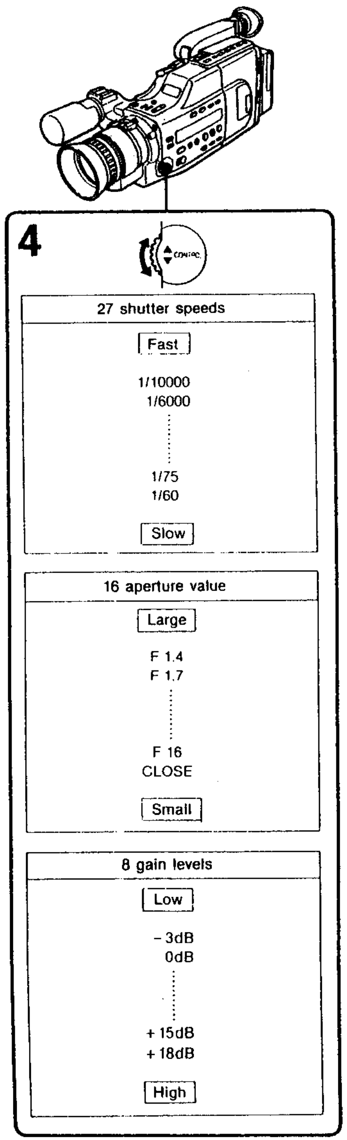
3 **Press the button of the parameter to be set.**

To set the shutter speed
The first press of the SHUTTER SPEED button sets the shutter speed to 1/100 speed and the second press sets it to 1/1000. To set to other speeds, go to step 4.

To set the aperture value
Press the IRIS button. The aperture is set to the value at the instant the button was pressed.

To set the gain
Press the GAIN button. The gain is set to the level at the instant the button was pressed.

Continued on the next page



4 Select the desired setting by the CONTROL dial.

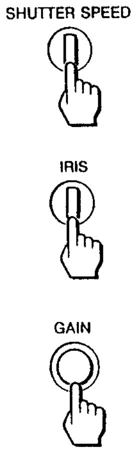
The indication in the viewfinder changes as shown in the illustration and below.

Selectable shutter speeds
1/60, 1/75, 1/90, 1/100, 1/125, 1/150, 1/180, 1/215, 1/250, 1/300, 1/350, 1/425, 1/500, 1/600. 1/725, 1/850, 1/1000, 1/1250, 1/1500, 1/1750, 1/2000, 1/2500, 1/3000, 1/3500, 1/4000, 1/6000, and 1/10000

Selectable aperture value
F1.4, F1.7, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9.6, F11, F14, F16, and CLOSE

Selectable gain level
−3 dB, 0 dB, +3 dB, +6 dB, +9 dB, +12 dB, +15 dB, and +18 dB

(c-2)



To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

To enter other programmed AE modes from the manual mode
Press the PROGRAM AE button to display the desired programmed AE mode.

When recording in the manual mode
Focus and white balance can be adjusted manually. See page 64 (focus) and page 67 (white balance) for details

The buttons pressed and the indication in the viewfinder
(c-2)

- **When the SHUTTER SPEED button is pressed**

The first press of this button sets the camcorder to the 1/100 shutter speed. The second press sets the camcorder to the 1/1000 shutter speed. For a quick access to the desired shutter speed, first press the button and set to the shutter speed whichever is closer to the desired speed and then turn the CONTROL dial.

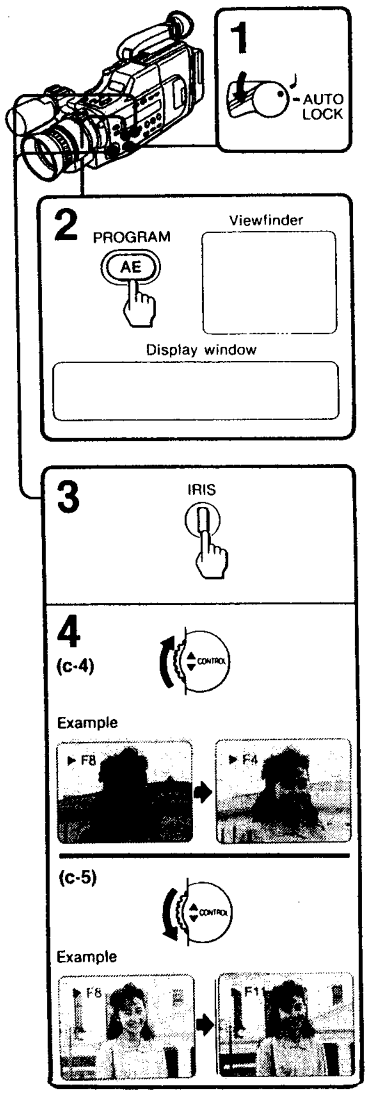
- **When the IRIS button is pressed**

The camcorder indicates the aperture value that was last detected when the camcorder was controlling the aperture automatically. At the same moment, though there is no indication, the gain level will be locked to match the aperture above to maintain the appropriate aperture.

- **When the GAIN button is pressed**

The camcorder indicates the gain level that was last detected when the camcorder was controlling the gain level automatically.
If aperture value was set first, the gain level to match that aperture value to maintain the appropriate exposure will be indicated in the viewfinder.

(c-3)


1
AUTO
LOCK
2
PROGRAM
AE
Viewfinder
Display window
3
IRIS
4
(c-4)
CONTROL
Example
▶ F8
▶ F4
(c-5)
CONTROL
Example
▶ F8
F1

Aperture Control Applications

(c-3)

Adjust the exposure when there is an extreme difference in the brightness between the subject and the background.

1 **Set the AUTO LOCK switch down.**

2 **Press the PROGRAM AE button until nothing is indicated in the upper left hand corner of the viewfinder.**
The camcorder enters the manual mode.

At this point, the shutter speed is set to 1/60, the aperture and gain are automatically adjusted to the shooting condition.

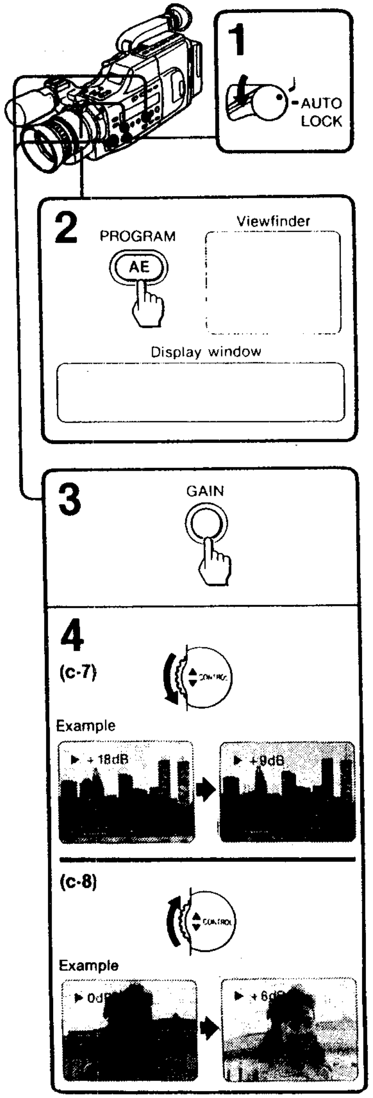
3 **Press the IRIS button.**

4 **Move the CONTROL dial to set the aperture to the appropriate value.**

Illumination from behind the subject and opposite the camera (Back light)
(c-4)
Move the CONTROL dial up to decrease the aperture value.

Illumination too strong
(c-5)
Move the CONTROL dial down to increase the aperture value.

(c-6)


1
AUTO
LOCK
2
PROGRAM
AE
Viewfinder
Display window
3
GAIN
4
(c-7)
CONTROL
Example
▶ +18dB
▶ +9dB
(c-8)
CONTROL
Example
▶ 0d
▶ +6d

Gain Level Control Applications

(c-6)

This camcorder automatically raises the gain level to capture the subject clearly when the shooting condition is dark. Due to this function, the recorded picture may seem brighter than the actual shooting condition. In these cases, set the gain level to reproduce the actual atmosphere. The gain level control can also be applied to adjusting the picture under back light condition without changing the depth of field.

1 **Set the AUTO LOCK switch down.**

2 **Press the PROGRAM AE button until nothing is indicated in the upper left hand corner of the viewfinder.**
The camcorder enters the manual mode.

At this point, the shutter speed is set to 1/60, the aperture and gain are automatically adjusted to the shooting condition.

3 **Press the GAIN button.**

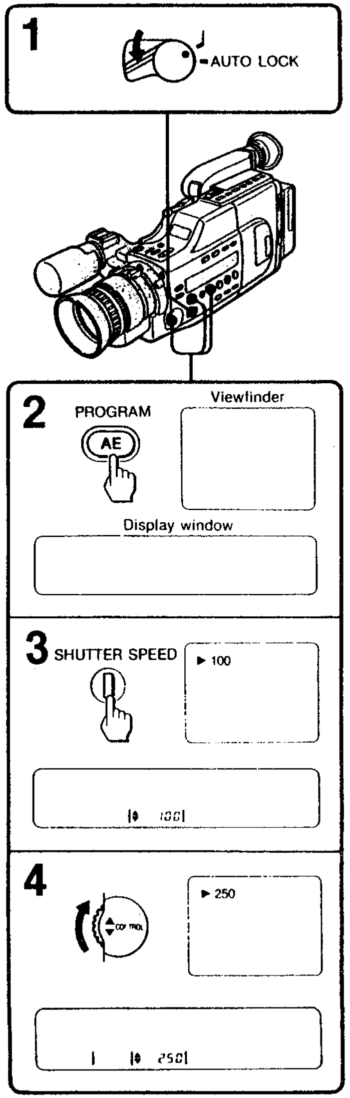
4 **Move the CONTROL dial to set the gain to the appropriate level.**

Shooting the picture in the dark effectively
(c-7)
Move the CONTROL dial down to lower the gain level.

Illumination from behind the subject and opposite the camera (Back light)
(c-8)
Move the CONTROL dial up to raise the gain level.

When the gain level is too high
The picture may become distorted.

(c-9)


1
AUTO LOCK
2
PROGRAM
AE
Viewfinder
Display window
3
SHUTTER SPEED
▶ 100
100
4
▶ 250
250

Setting Multiple Parameters

(c-9)

Example: To set the shutter speed to 1/250, aperture value to F4, and gain level to +6dB.

1 **Set the AUTO LOCK switch down.**

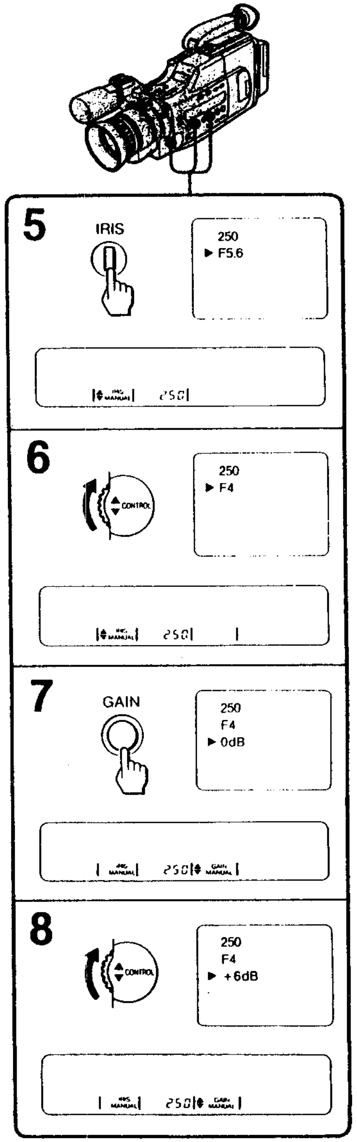
2 **Press the PROGRAM AE button until nothing is indicated in the upper left hand corner of the viewfinder.**
The camcorder enters the manual mode.

At this point, the shutter speed is set to 1/60, the aperture and gain are automatically adjusted to the shooting condition.

3 **Press the SHUTTER SPEED button.**

4 **Move the CONTROL dial and set the shutter speed to 250.**

Continued on the next page


5
IRIS
250
▶ F5.6
6
CONTROL
250
▶ F4
7
GAIN
250
F4
▶ 0dB
8
CONTROL
250
F4
▶ +6dB

5 **Press the IRIS button.**

6 **Move the CONTROL dial and set the aperture value to F4.**

7 **Press the GAIN button.**

8 **Move the CONTROL dial and set the gain level to +6dB.**

Camera recording will be performed under this setting even when the shooting condition changes.

To return to the full automatic mode
Set the AUTO LOCK switch to AUTO LOCK.

What parameter to set first
Setting can be performed from any parameter. Press the button of the desired parameter. The indication when the button is pressed is the same as those explained in page 101.

(c-10)

Parameter	Indications in the Viewfinder (setting examples)
SHUTTER SPEED Press until the shutter speed indication is cleared.	► 250 ➡
	► 250 F4 ➡ ► F4
	► 250 0dB ➡ ► 0dB
	► 250 F4 0dB ➡ ► F4 0dB
IRIS Press	► F1.4 ➡
	500 ► F1.4 ➡ ► 500
	► F1.4 +3dB ➡ ► +3dB
	500 ► F1.4 +3dB ➡ 500 ► +3dB
GAIN Press	► +6dB ➡
	F2.8 ► +6dB ➡ ► F2.8
	1000 ► +6dB ➡ ► 1000
	1000 F2.8 ► +6dB ➡ 1000 ► F2.8

To change the setting

- **Parameter with the ► indication:**
  Move the CONTROL dial to change the setting.
- **Parameter without the ► indication:**

1 Press the button of the desired parameter to move the ► indication to that parameter.

2 Then move the CONTROL dial to change the setting.

To quit the setting
(c-10)
Parameter with the ► indication:
Press the button of that parameter. The indication is erased from the viewfinder.
Parameter without the ► indication:

1 Press the button of the parameter to be erased to move the ► indication to that parameter.

2 Then press the same button to erase that parameter from the viewfinder.

When the parameter is erased
The adjustment of that parameter will be as follows.

- Shutter speed: Locked to 1/60.
- Aperture value: Automatic adjustment
- Gain level: Automatic adjustment. However, when the aperture value is in the viewfinder (i.e. locked to a certain value), gain will be set to the corresponding level to maintain the appropriate exposure.

(c-11)

	Aperture value	Shutter speed	Gain level
Selectable steps	16 steps	27 steps	8 steps
Variation of exposure (in terms of EV steps)	0.5 EV steps	0.25 EV steps 0.5 EV steps*	0.5 EV steps
Towards bright (+ EV) ↕ Towards dark (− EV)	F1.4 ↕ F16	1/60 ↕ 1/10000	+18 dB ↕ −3 dB

*For shutter speeds between 1/4000 and 1/10000.

Advanced Application of the Manual Mode

The manual adjustment function offers an advanced video camera recording technique by controlling the exposure with the balance of shutter speed, aperture value and gain level.

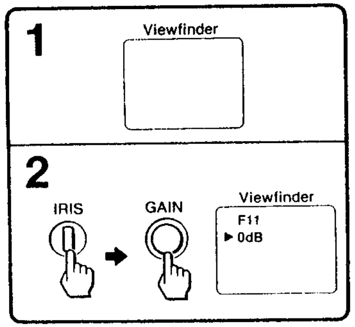
Understanding the relation between aperture value, shutter speed, and gain
Exposure is measured in the units of Exposure value (EV). In this camcorder, the total EV can be varied or kept at a constant level by controlling the balance of the parameters.

Refer to the chart on the left **(c-11)** for an overview of the relation between aperture value, shutter speed, and gain of this camcorder.

The relation between exposure and the aperture, shutter speed, and gain can be concluded as:

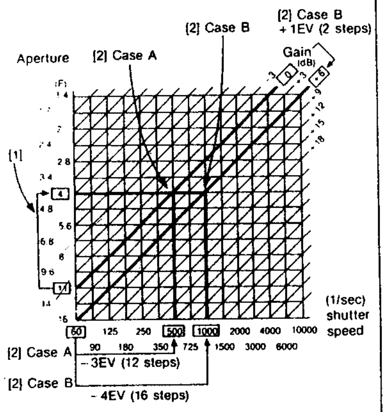
EV (Exposure value) = Aperture control + Shutter speed control + Gain control

(c-12)



(c-13)

Relation between aperture, shutter speed, and gain



Setting in step 2
Aperture value: F11
Shutter speed: 1/60
Gain level: 0dB

Vertical axis: Aperture value in 0.5EV/step
Horizontal axis: Shutter speed in 0.5EV/2 steps, 0.5EV/step for shutter speeds between 1/4000 and 1/10000
Diagonal axis: Gain level in 0.5 EV/step

Example: To change the setting without changing the exposure

(c-12)

1 **Set the camcorder to the manual mode referring to page 104.**

2 **Press the IRIS and GAIN buttons.**
At this point, the shutter speed is set to 1/60, the aperture and gain is set to the shooting condition. Let's suppose the aperture value is F11 and the gain level is 0 dB.

The setting at this point becomes the basic reference to perform the following setting.

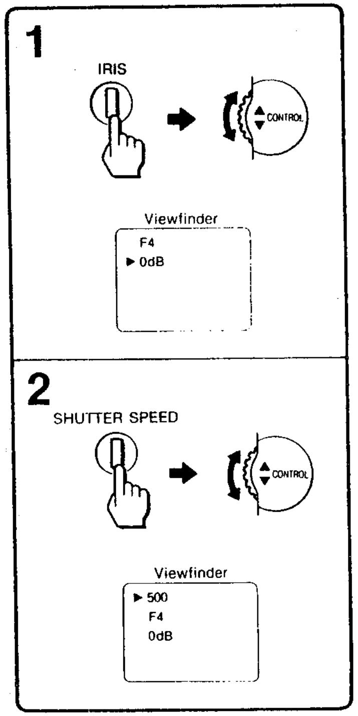
Let's set the exposure at this point at 0 EV.

0 EV = Aperture control + Shutter speed control + Gain contro

In order to maintain the same exposure, the total exposure should be kept to 0 EV in any case.

3 **Refer to the diagram on the left (c-13) to choose the setting.**

(c-14)



To set the aperture to F4 without changing the exposure

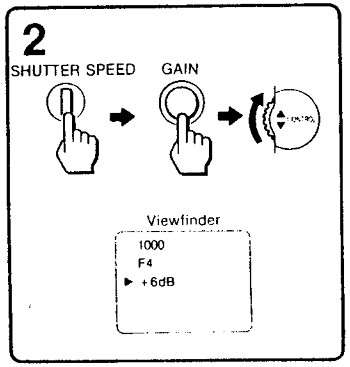
(c-14)

1 **Press the IRIS button and move the CONTROL dial to set the aperture to F4.**
When shifting the aperture from F11 to F4, the exposure becomes 6 steps brighter. This means that in terms of EV, the total exposure becomes +3 EV. In order to keep the total exposure to 0 EV, reduce the exposure by −3 EV with shutter speed or gain.

2 **Case A: To reduce the exposure by shutter speed**
How it works:
What is required here is to reduce the exposure by −3 EV, i.e.12 steps, by shifting the shutter speed from 1/60 to 1/500.
Operation:
Press the SHUTTER SPEED button and move the CONTROL dial to set the shutter speed to 1/500.

	Aperture control		Shutter speed control
0 EV =	F11 to F4	+	1/60 to 1/500
	+3 EV		−3 EV

Continued on the next page



Case B: To keep the shutter speed at 1/1000 and to reduce the exposure by gain level.

How it works:

When setting the shutter speed to 1/1000, the total exposure is reduced to −4 EV. This means that +1 EV, i.e. 2 steps, should be added by controlling the gain level. Therefore, shift the gain level from 0 dB to +6 dB.

Operation:

Press the SHUTTER SPEED button twice and set the shutter speed to 1/1000. Then press GAIN and set the gain level to +6 dB.

	Aperture control		Shutter speed control		Gain control
0 EV =	F11 to F4	+	1/60 to 1/1000	+	0 dB to −6 dB
	+3 EV		−4 EV		+1 EV

Hint for effective camera work

Gain can be used in terms of film sensitivity of a still camera.

Notes

- When shooting outdoors, the brightness of the bject may change due to the change of weather.
- When shooting condition changes, resetting of the parameters is recommended.

Trouble Indications

If an indication blinks in the viewfinder screen or a caution lamp on the main unit blinks, check the following table.

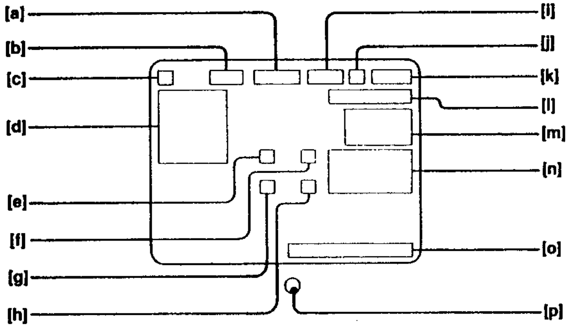
☐ slow blinking ☐ fast blinking

	Symptom	Cause	Corrective actions
Camera/ VTR	🔋, **Tally lamp**	The battery is weak.	Prepare a charged one.
	🔋, **Tally lamp**	The battery is used up	Use a charged battery.
Camera	📼 ⏏, **Tally lamp**	The tape is at its end	Use a new tape.
	📼, **Tally lamp**	The tape is near its end	Prepare a new one
	📼	No tape is inserted.	Insert a tape.
	📼 ⏏	The tab on the tape is out (red).	Slide the tab.
	☁	The white balance has not been set correctly.	Adjust the white balance correctly.
	☁	White balance is being set by the one push white balance function.	Do not move the unit until the blinking stops.
	▶	Exposure is not appropriate in the aperture priority or shutter priority mode.	Adjust the aperture or shutter speed to obtain the appropriate exposure.
Camera/ VTR	💧	Moisture condensation has occurred.	Remove the tape and leave the recorder for at least an hour.
	⊗	Video head clogging.	Clean the head using the Sony V8-25CLH video head cleaning tape.
	⏏	Other troubles occurred	Consult your nearest Sony dealer
	"AM 12:00:00" blinks for 5 seconds in the viewfinder after setting the POWER switch to CAMERA. In the display window "0:00:00" or bar indication blinks.	The lithium battery is not installed. The lithium battery is exhausted.	Install the lithium battery.
	The current time blinks for 5 seconds in the viewfinder after setting the POWER switch to CAMERA. In the display window the counter, date/time indication blinks.	The lithium battery is weak.	Use a new battery.

Indications in the Viewfinder and the Display Window

Indications in the Viewfinder

(i-1)


[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]
[j]
[k]
[l]
[m]
[n]
[o]
[p]

(i-1)

[a] Custom mode indication

[b] Macro mode indication

[c] White balance mode indication

[d] Fader and programmed AE indication

[e] Battery indication

[f] Tape indication

[g] Moisture condensation indication

[h] Head clog and caution indication

[i] Hi8 mode indication

[j] LP mode indication

[k] Tape operation mode, camera operation mode indication

[l] Tape counter indication

[m] Title number, color, and mode indication

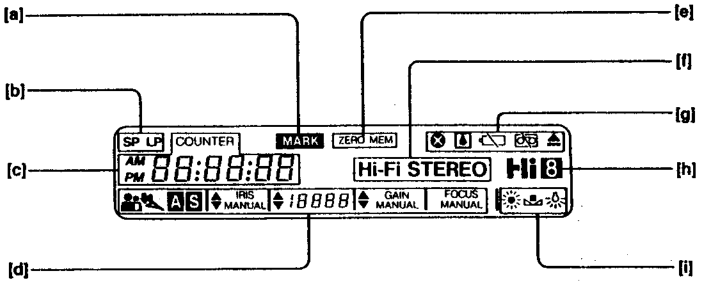
[n] Index operation and zero memory mode indication

[o] Date and time

[p] Camera recording lamp

Indications in the Display Window

(i-2)


[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]
SP LP
COUNTER
MARK
ZERO MEM
AM
PM
88:88:88
Hi-Fi STEREO
Hi8
A S
IRIS MANUAL
18888
GAIN MANUAL
FOCUS MANUAL

(i-2)

[a] Index mark indication

[b] Tape speed indication

[c] Time, date, and tape counter indication

[d] Programmed AE and manual mode indications

[e] Zero memory mode indication

[f] Hi-fi stereo mode indication

[g] Caution indication

[h] Hi8 mode indication

[i] White balance mode indication

Trouble Checks

If you think you have a problem, double-check before calling the serviceman.
You may have overlooked something relatively simple!

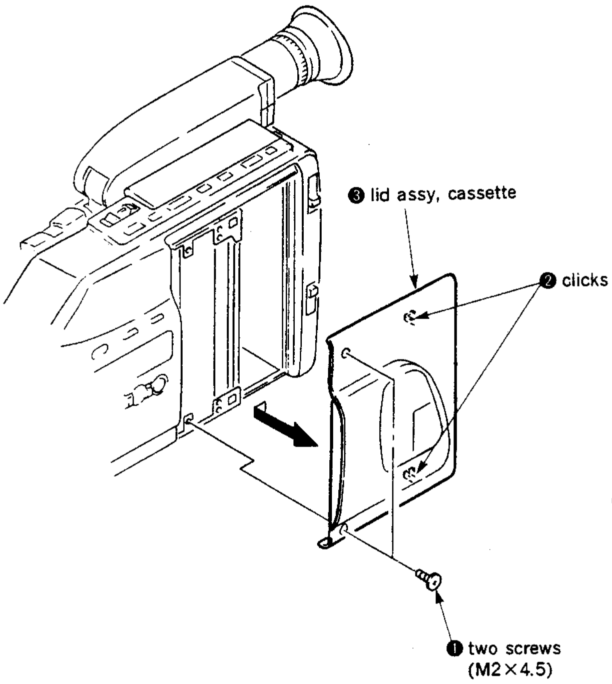
Symptom	Cause	Procedure
The power will not turn on.	The battery is not attached.	Attach the battery.
	The battery is exhausted.	Use a new battery.
	The AC power adaptor is not connected to a wall outlet.	Connect the adaptor to a wall outlet.
The START/STOP button does not operate.	The tape is affixed to the drum.	Remove the cassette with the EJECT button.
	The tape is at its end.	Rewind the tape or use a new one.
	The POWER switch is set to VTR.	Set it to CAMERA.
	The tab on the cassette is out (red).	Use a new cassette or slide the tab.
The tape does not move when a tape transport button is pressed.	POWER switch is set to CAMERA or OFF.	Set it to VTR.
	The tape is at its end.	Rewind the tape or use a new one.
The power turns off.	While being operated in the CAMERA mode, the recorder has been in the pause mode for more than 5 minutes.	Slide down the STANDBY switch, and slide it up again.
	The battery is exhausted.	Use a charged battery.
A vertical band appears when a subject such as lights or a candle flame is shot against a dark background.	The contrast between the subject and background is too high; the camera is not malfunctioning.	—
The battery pack is quickly discharged.	The ambient temperature is too low.	—
	The battery pack has not been charged fully.	Charge the battery pack again.
The cassette cannot be removed from the compartment.	The battery is exhausted.	Use the charged battery or the AC power adaptor.
Automatic focus does not function.	The AUTO LOCK switch is not set to AUTO LOCK.	Set the AUTO LOCK switch to AUTO LOCK.
	The camcorder is in the macro mode.	Auto focus does not function in the macro mode. Adjust the focus manually.
	Shooting condition is not suited for automatic focusing. (See page 62.)	Adjust the focus manually. (See page 64).
The color of the playback is not appropriate.	The AUTO LOCK switch is not set to AUTO LOCK.	Set the AUTO LOCK switch to AUTO LOCK.
	Shooting condition is not suitable for auto white balance operation. (See page 66.)	Set the AUTO LOCK switch down and adjust the white balance manually. (See page 67.)
The image on the viewfinder screen is not clear.	The viewfinder lens is not adjusted.	Adjust the viewfinder lens.
	Moisture has condensed on the lens.	Turn off the power and leave the camcorder unused for at least 1 hour.
The playback picture is not clear.	"EDIT ON" is selected in the MODE SET menu.	Select "EDIT OFF" to deactivate the edit function.
	The channel for the VCR is not adjusted on the TV.	Adjust the TV.

Symptom	Cause	Procedure
The picture is noisy.	The video heads may be contaminated.	Clean the heads using the Sony V8-25CLH video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. If the cleaning cassette is not available in your area, have the heads cleaned at the nearest Sony service facility.
No function except for cassette ejection works.	Moisture condensation has occurred.	Remove the cassette and leave the unit for at least an hour.
The auto white balance function does not work.	• The AUTO LOCK switch is not set to AUTO LOCK. • Shooting condition are not suitable for auto white balance operation.	• Set the AUTO LOCK switch to AUTO LOCK. • Adjust the white balance manually. (See page 67.)
The indication in the viewfinder is blinking.	No lithium battery installed.	Install a lithium battery.
	The lithium battery is exhausted.	Use a new battery.
No sound or only a low sound is heard when playing back a tape.	The stereo tape is played back with the camcorder set to "HIFI SOUND 1 or 2."	Select "HIFI SOUND STEREO" in the MODE SET menu. (See page 59.)
Nothing can be viewed except for a black screen in the viewfinder.	The power of the camcorder was turned off with the aperture closed.	Open the aperture in the manual mode. (See page 99.)

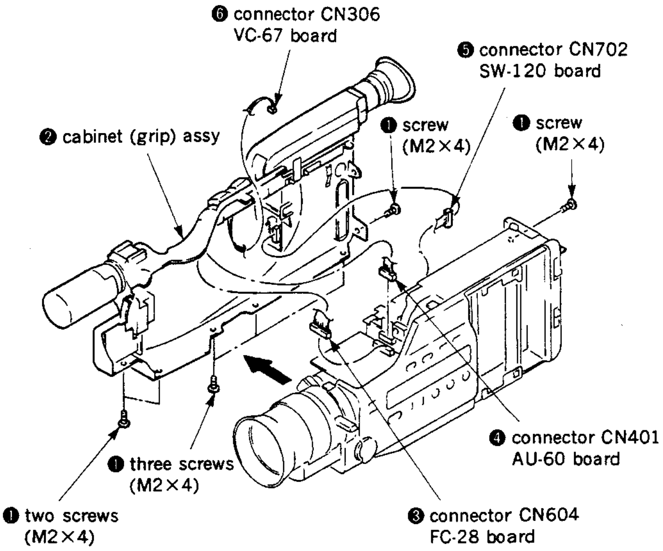
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CASSETTE LID ASSY

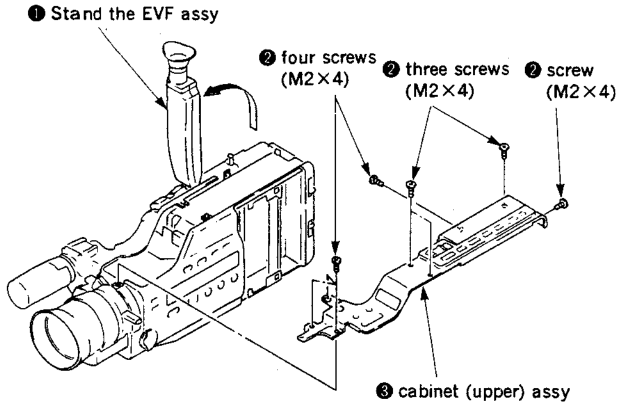
Note: When mounting, fit the clicks ❷ into holes completely, then clamp two screws ❶.


❸ lid assy, cassette
❷ clicks
❶ two screws (M2×4.5)

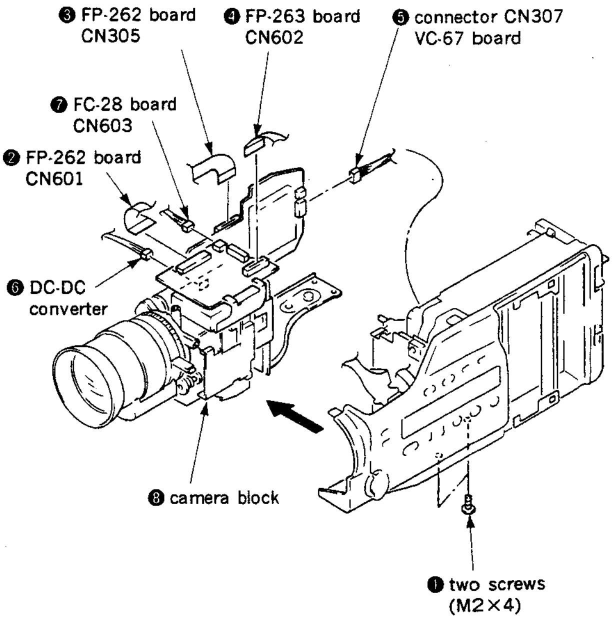
2-3. REMOVAL OF CABINET (GRIP) ASSY


❻ connector CN306 VC-67 board
❺ connector CN702 SW-120 board
❷ cabinet (grip) assy
❶ screw (M2×4)
❶ screw (M2×4)
❹ connector CN401 AU-60 board
❶ three screws (M2×4)
❶ two screws (M2×4)
❸ connector CN604 FC-28 board

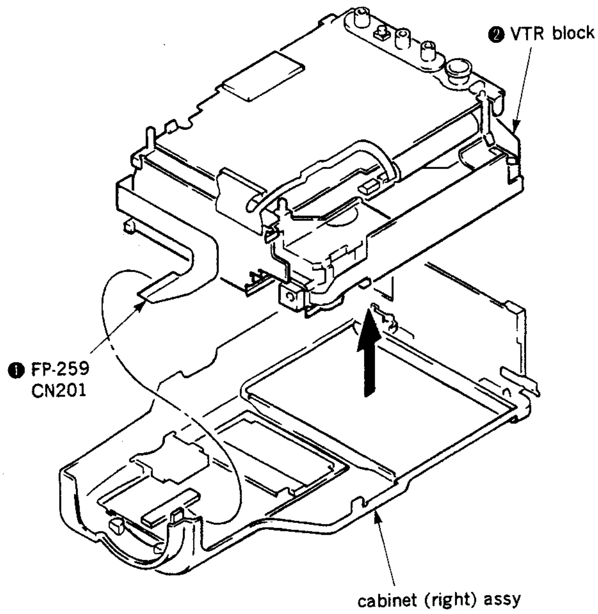
2-2. REMOVAL OF CABINET (UPPER) ASSY


❶ Stand the EVF assy
❷ four screws (M2×4)
❷ three screws (M2×4)
❷ screw (M2×4)
❸ cabinet (upper) assy

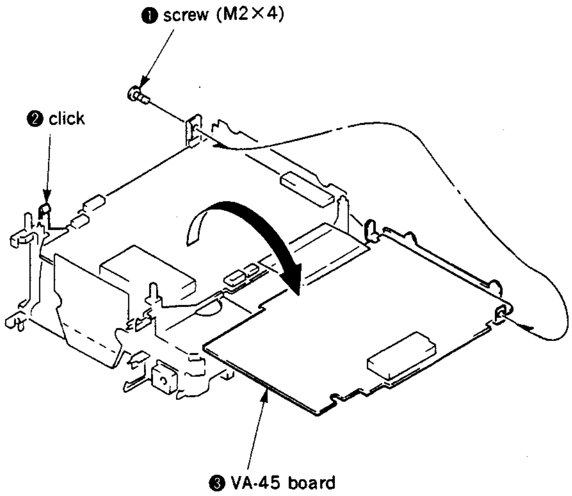
2-4. REMOVAL OF CAMERA BLOCK


❸ FP-262 board CN305
❹ FP-263 board CN602
❺ connector CN307 VC-67 board
❼ FC-28 board CN603
❷ FP-262 board CN601
❻ DC-DC converter
❽ camera block
❶ two screws (M2×4)

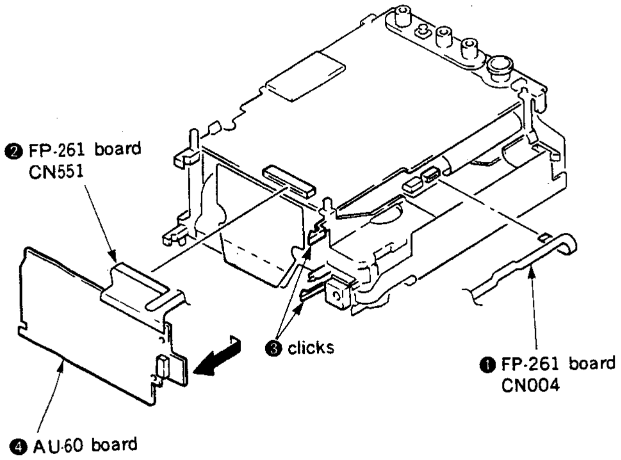
2-5. REMOVAL OF VTR BLOCK


❷ VTR block
❶ FP-259
CN201
cabinet (right) assy

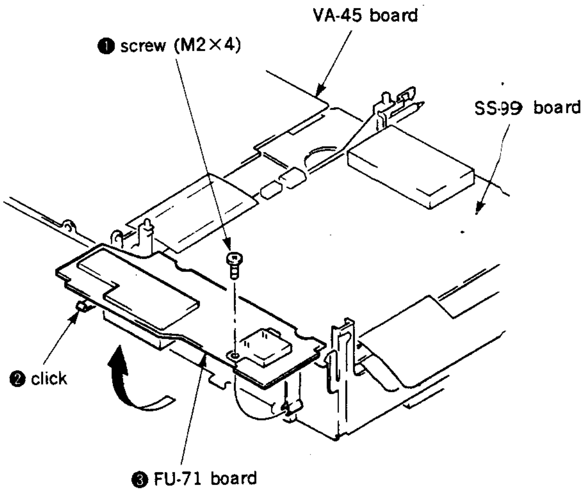
2-7. OPENING OF VA-45 BOARD


❶ screw (M2×4)
❷ click
❸ VA-45 board

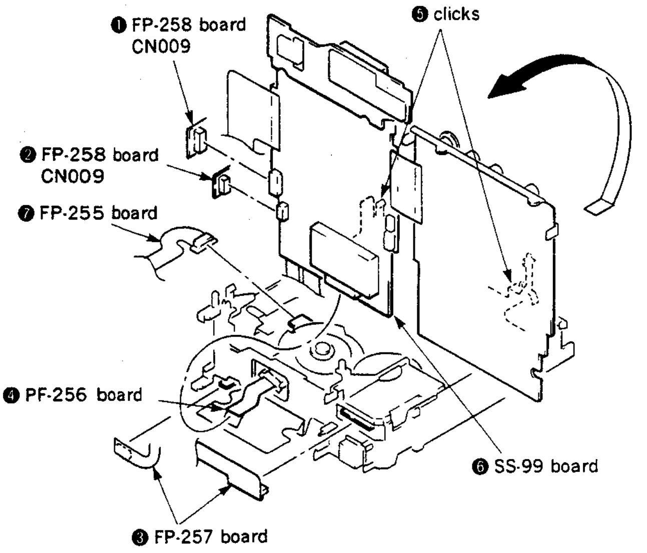
2-6. REMOVAL OF AU-60 BOARD


❷ FP-261 board
CN551
❸ clicks
❶ FP-261 board
CN004
❹ AU-60 board

2-8. OPENING OF FU-71 BOARD

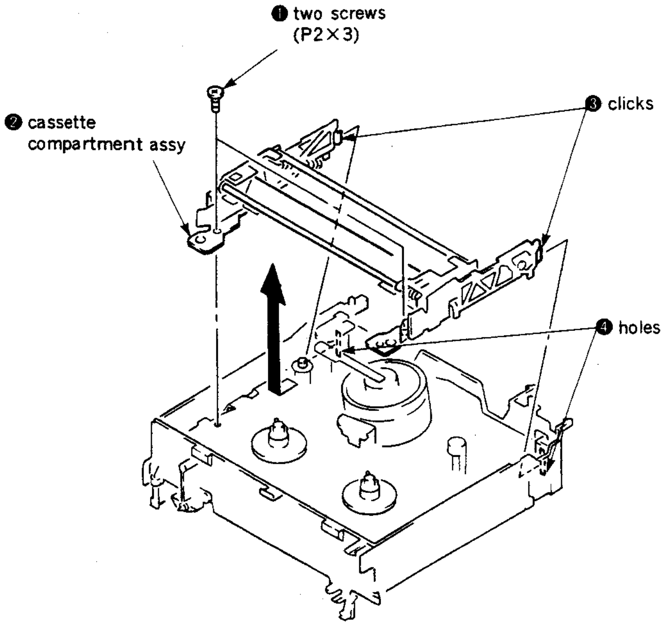

VA-45 board
❶ screw (M2×4)
SS-99 board
❷ click
❸ FU-71 board

2-9. REMOVAL OF SS-99 BOARD

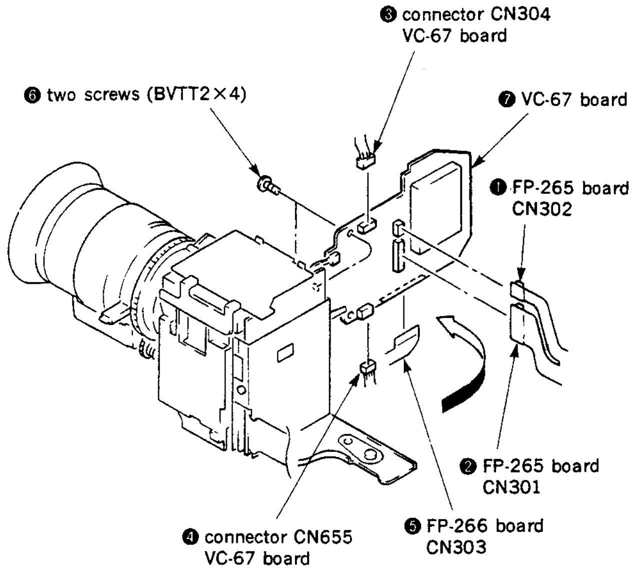

❶ FP-258 board
CN009
❺ clicks
❷ FP-258 board
CN009
❼ FP-255 board
❹ PF-256 board
❻ SS-99 board
❸ FP-257 board

2-10. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY

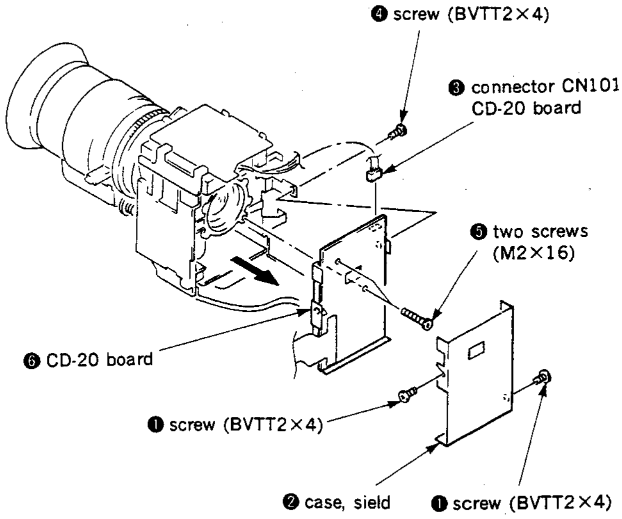
Note: When mounting, fit clicks ❸ into completely, then clamp two screws ❶.


❶ two screws
(P2×3)
❷ cassette
compartment assy
❸ clicks
❹ holes

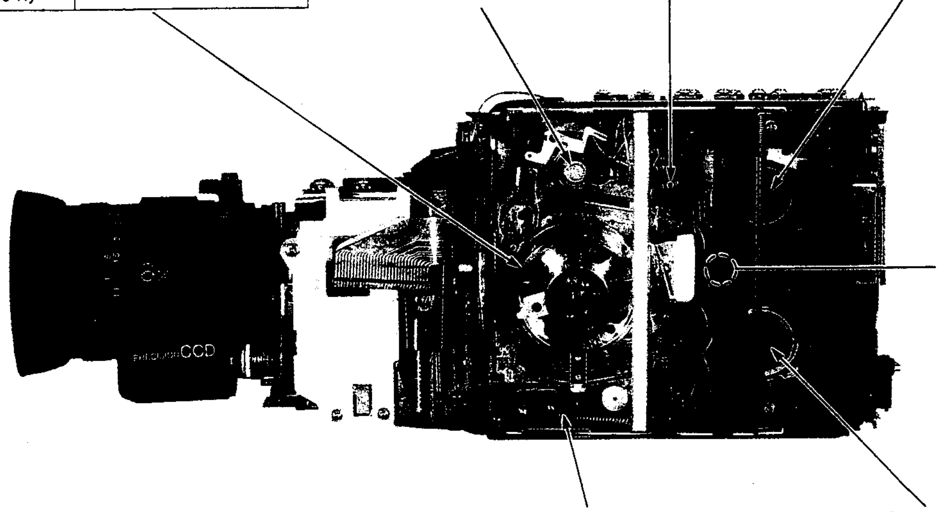
2-11. OPENING OF VC-67 BOARD


❸ connector CN304
VC-67 board
❻ two screws (BVTT2×4)
❼ VC-67 board
❶ FP-265 board
CN302
❷ FP-265 board
CN301
❹ connector CN655
VC-67 board
❺ FP-266 board
CN303

2-12. REMOVAL OF CD-20 BOARD

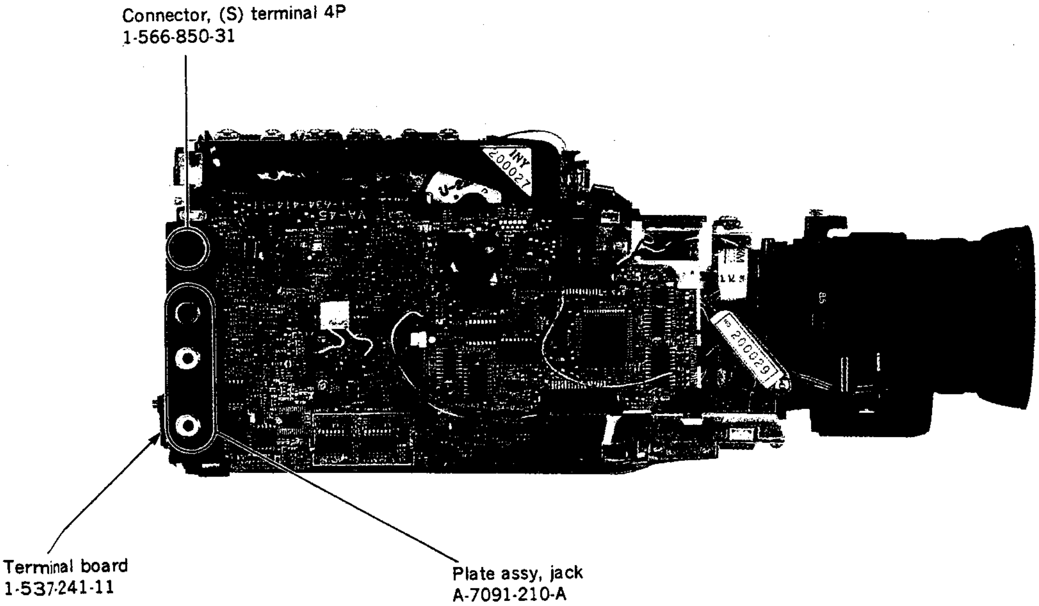

❹ screw (BVTT2×4)
❸ connector CN101
CD-20 board
❺ two screws
(M2×16)
❻ CD-20 board
❶ screw (BVTT2×4)
❷ case, sield
❶ screw (BVTT2×4)

2-13. INTERNAL VIEWS



Drum ASSY (DGU-55A-R)	A-7048-355-A
Drum upper (DGR-55-R)	A-7049-305-A

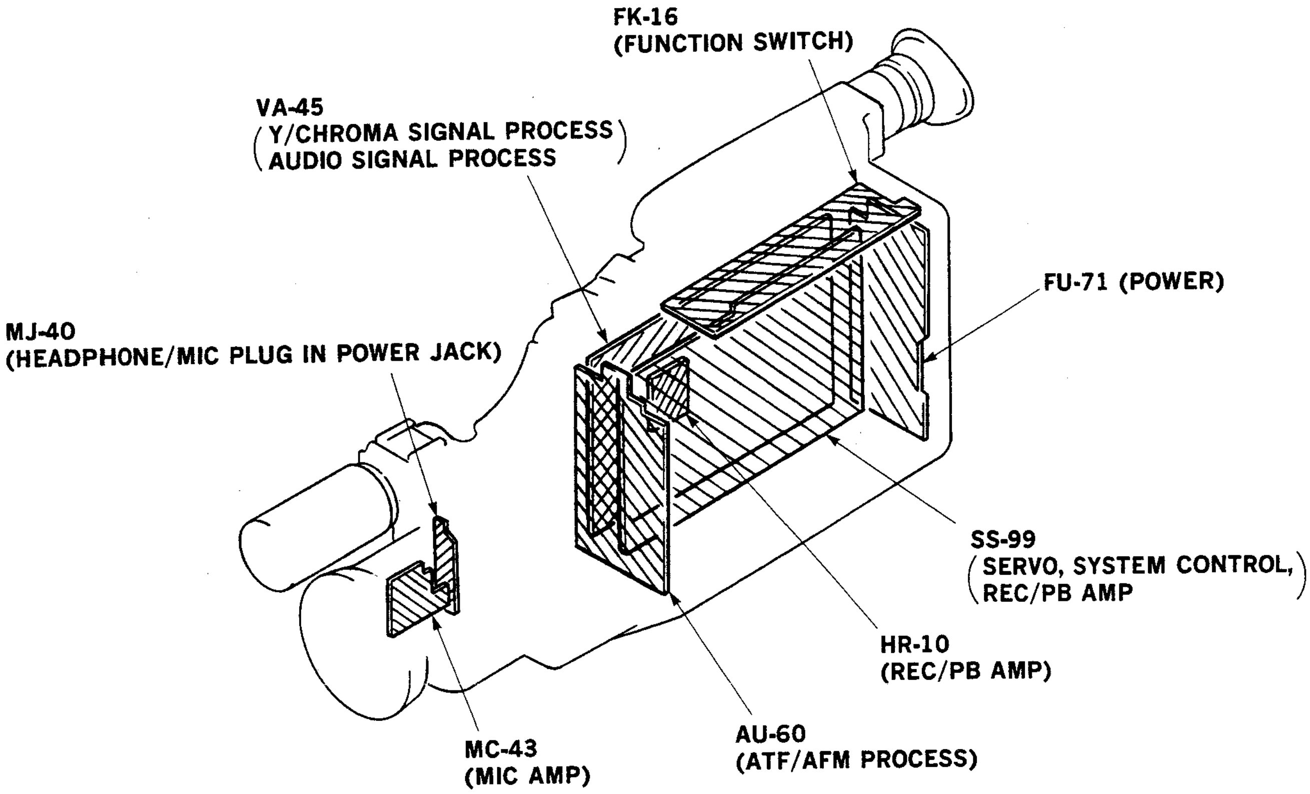
M902
Motor, capstan
8-835-331-01
Aamblock assy, pinch
A-7040-219-A
Table assy, reel, T
X-3728-855-1
Tape top/Tape end LED
(GL-452S)
8-719-940-81
Table assy, reel, S
X-3728-851-1
M903
Motor assy, loading
A-7040-208-A
CCD

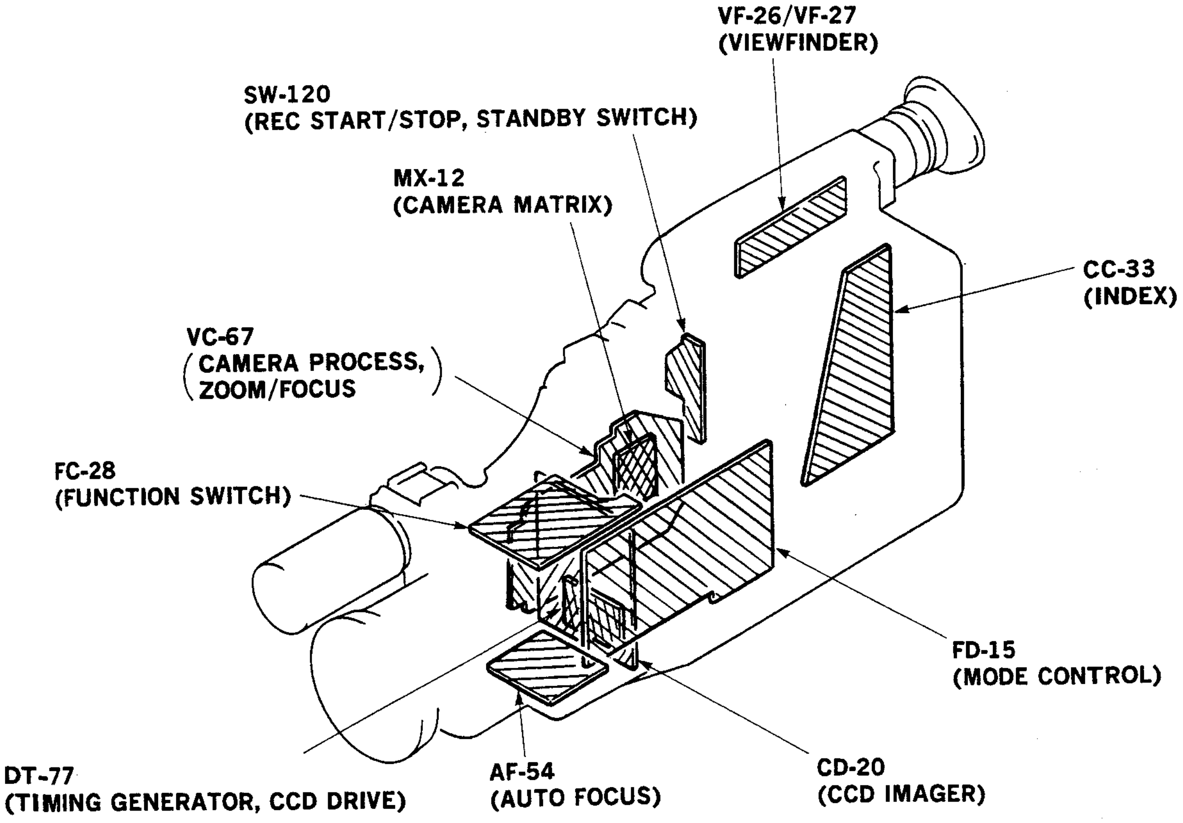


Connector, (S) terminal 4P
1-566-850-31
Terminal board
1-537-241-11
Plate assy, jack
A-7091-210-A

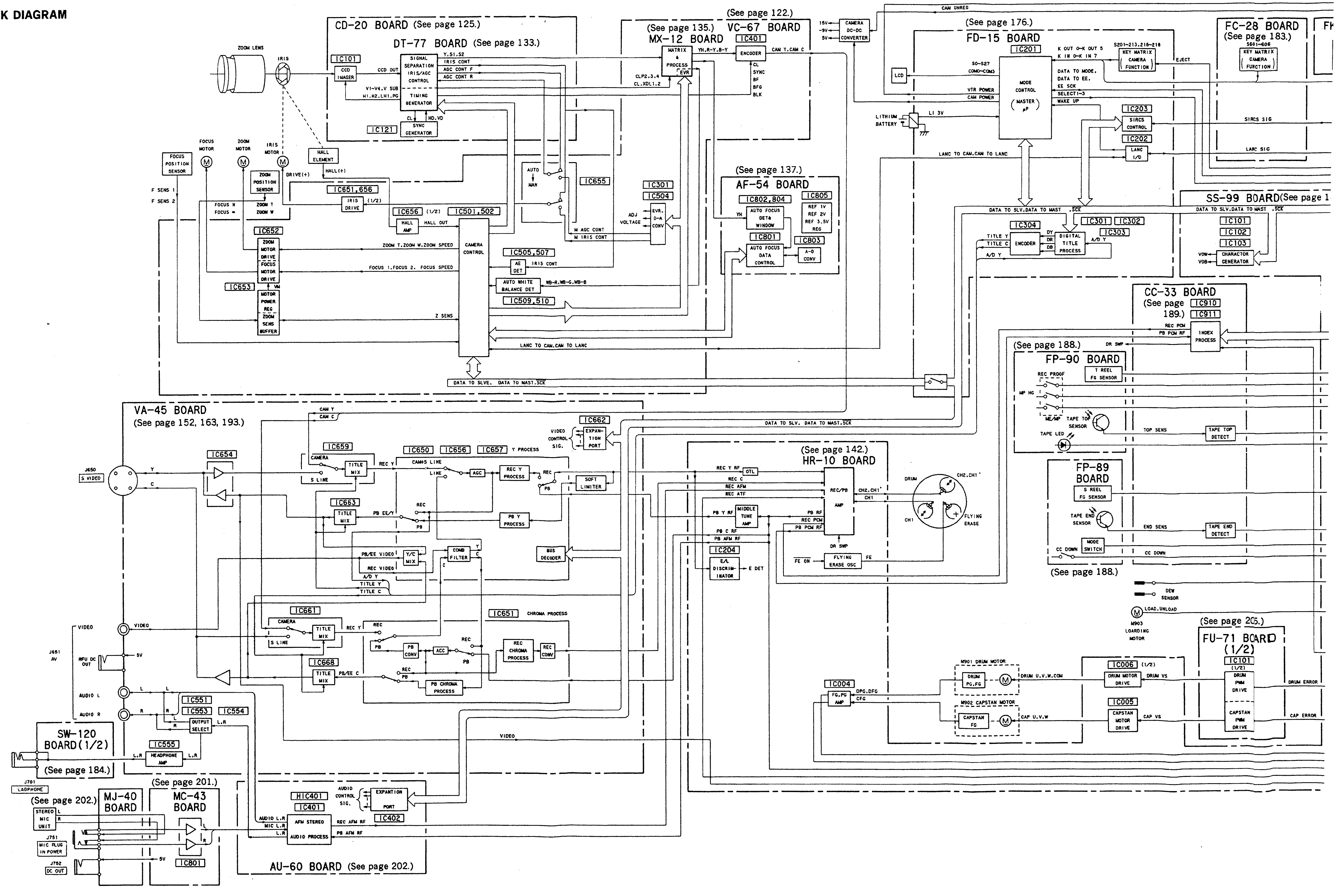
SECTION 3
DIAGRAMS

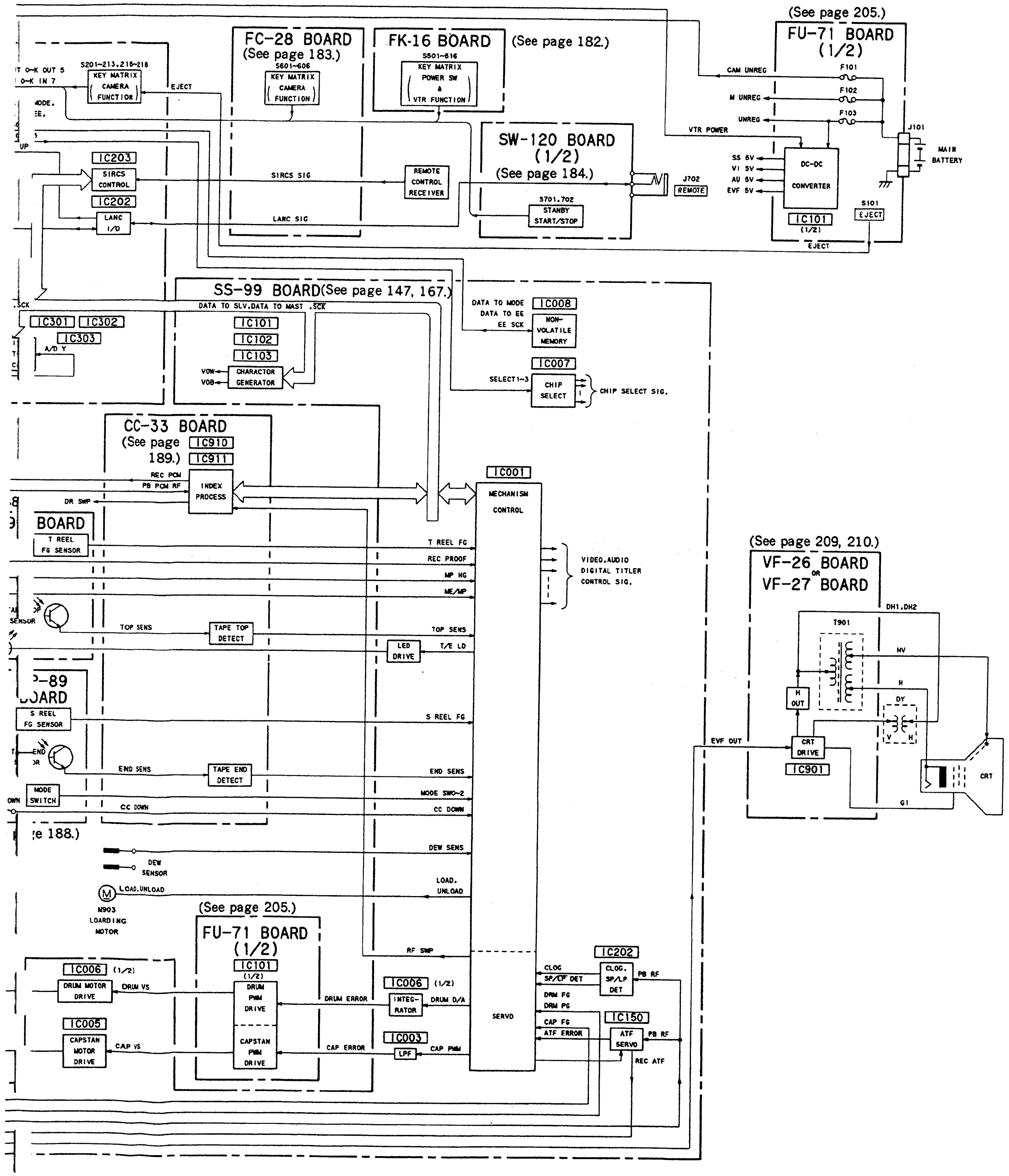
3-1. CIRCUIT BOARDS LOCATION

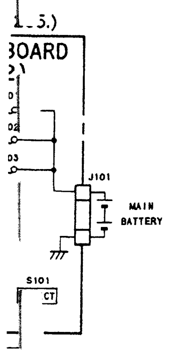

FK-16
(FUNCTION SWITCH)
VA-45
(Y/CHROMA SIGNAL PROCESS
AUDIO SIGNAL PROCESS)
FU-71 (POWER)
MJ-40
(HEADPHONE/MIC PLUG IN POWER JACK)
SS-99
(SERVO, SYSTEM CONTROL,
REC/PB AMP)
HR-10
(REC/PB AMP)
AU-60
(ATF/AFM PROCESS)
MC-43
(MIC AMP)

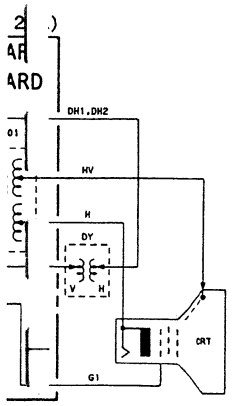

VF-26/VF-27
(VIEWFINDER)
SW-120
(REC START/STOP, STANDBY SWITCH)
MX-12
(CAMERA MATRIX)
CC-33
(INDEX)
VC-67
(CAMERA PROCESS,
ZOOM/FOCUS)
FC-28
(FUNCTION SWITCH)
FD-15
(MODE CONTROL)
DT-77
(TIMING GENERATOR, CCD DRIVE)
AF-54
(AUTO FOCUS)
CD-20
(CCD IMAGER)

3-2. OVERALL BLOCK DIAGRAM

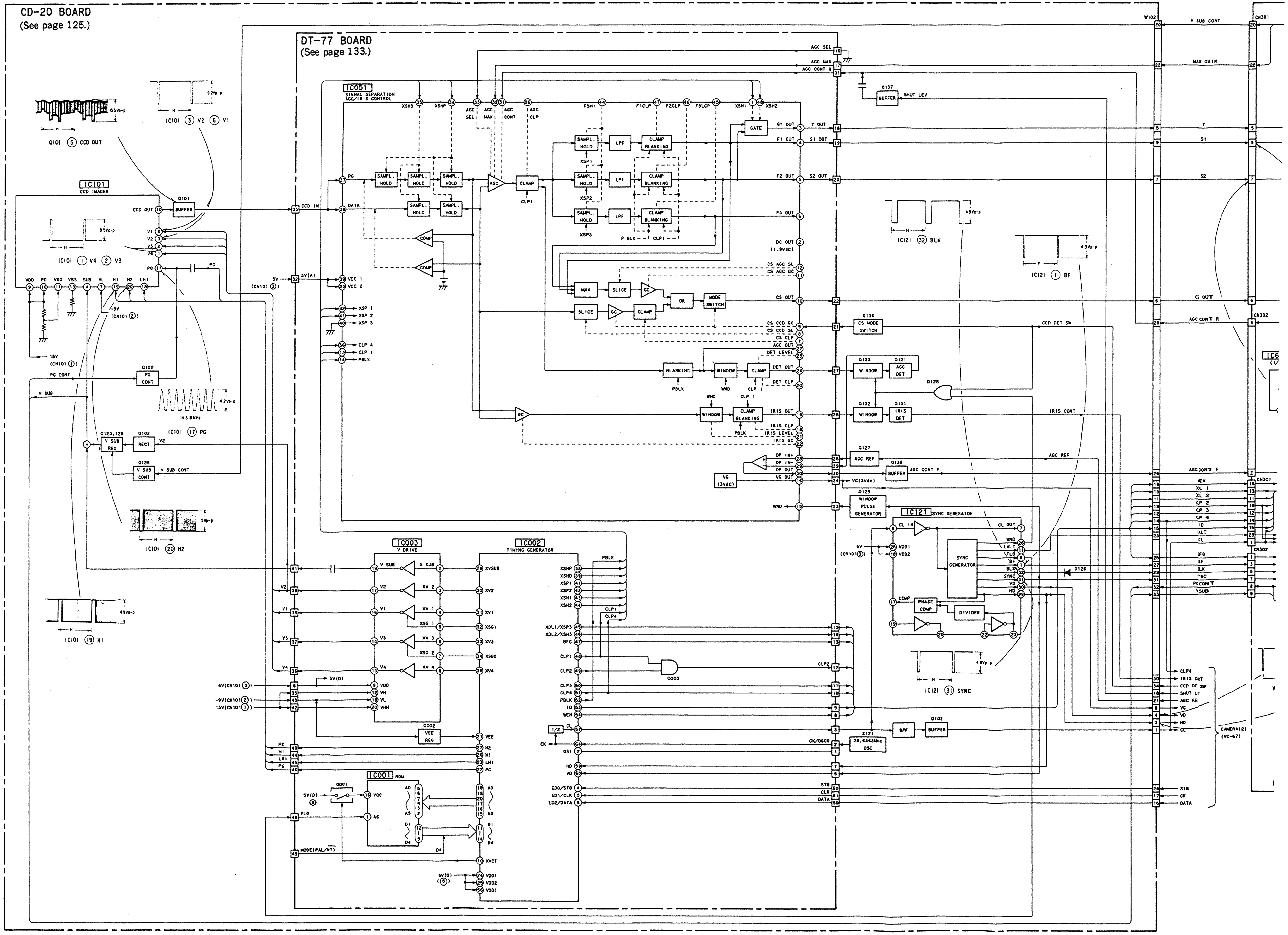

CD-20 BOARD (See page 125.)
DT-77 BOARD (See page 133.)
ZOOM LENS
IRIS
IC101
CCD IMAGER
CCD OUT
SIGNAL SEPARATION IRIS/AGC CONTROL
TIMING GENERATOR
IC121
SYNC GENERATOR
Y.S1.S2
IRIS CONT
AGC CONT F
AGC CONT R
HD.VD
FOCUS MOTOR
ZOOM MOTOR
IRIS MOTOR
HALL ELEMENT
FOCUS POSITION SENSOR
ZOOM POSITION SENSOR
F SENS 1
F SENS 2
IC651,656
IRIS DRIVE
IC656
HALL AMP
HALL OUT
IC501,502
IC655
IC652
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
IC653
MOTOR POWER REG
ZOOM SENS BUFFER
CAMERA CONTROL
ZOOM T.ZOOM W.ZOOM SPEED
FOCUS 1.FOCUS 2. FOCUS SPEED
Z SENS
IC505,507
AE DET
IRIS CONT
AUTO WHITE BALANCE DET
WB-R.WB-G.WB-B
IC509,510
LANC TO CAM.CAM TO LANC
DATA TO SLVE. DATA TO MAST.SCK
AUTO
MAN
M AGC CONT
M IRIS CONT
IC301
IC504
ADJ VOLTAGE
EVR. D-A CONV
(See page 135.)
MX-12 BOARD
MATRIX & PROCESS
EVR
(See page 122.)
VC-67 BOARD
IC401
ENCODER
YH.R-Y.B-Y
CAM Y.CAM C
CLP2.3.4
CL.XDL1.2
CL
SYNC
BF
BFG
BLK
CAMERA DC-DC CONVERTER
15V
-9V
5V
(See page 137.)
AF-54 BOARD
IC802,804
AUTO FOCUS DETA WINDOW
IC805
REF 1V
REF 2V
REF 3.5V
REG
IC801
AUTO FOCUS DATA CONTROL
IC803
A-D CONV
YH
CAM UNREG
(See page 176.)
FD-15 BOARD
IC201
LCD
S0-S27
COM0-COM3
VTR POWER
CAM POWER
MODE CONTROL (MASTER μP)
K OUT 0-K OUT 5
K IN 0-K IN 7
S201-213,216-218
KEY MATRIX (CAMERA FUNCTION)
EJECT
DATA TO MODE.
DATA TO EE.
EE SCK
SELECT1-3
WAKE UP
IC203
SIRCS CONTROL
IC202
LANC I/O
LITHIUM BATTERY
LI 3V
LANC TO CAM.CAM TO LANC
FC-28 BOARD
(See page 183.)
S601-606
KEY MATRIX (CAMERA FUNCTION)
SIRCS SIG
LANC SIG
SS-99 BOARD (See page 1
DATA TO SLV.DATA TO MAST .SCK
IC101
IC102
IC103
CHARACTOR GENERATOR
VOW
VOB
DATA TO SLV.DATA TO MAST .SCK
IC304
ENCODER
IC301
IC302
IC303
DIGITAL TITLE PROCESS
TITLE Y
TITLE C
A/D Y
DY
DR
DB
CC-33 BOARD
(See page 189.)
IC910
IC911
REC PCM
PB PCM RF
INDEX PROCESS
(See page 188.)
FP-90 BOARD
DR SWP
REC PROOF
MP HG
T REEL FG SENSOR
ME/MP
TAPE TOP SENSOR
TAPE LED
TOP SENS
TAPE TOP DETECT
FP-89 BOARD
S REEL FG SENSOR
TAPE END SENSOR
END SENS
TAPE END DETECT
MODE SWITCH
CC DOWN
(See page 188.)
DEW SENSOR
M903 LOADING MOTOR
LOAD.UNLOAD
VA-45 BOARD
(See page 152, 163, 193.)
CAM Y
CAM C
J650
S VIDEO
Y
C
IC654
IC659
CAMERA
S LINE
TITLE MIX
REC Y
IC650
IC656
IC657
Y PROCESS
CAM+S LINE
LINE
AGC
REC Y PROCESS
REC
PB
SOFT LIMITER
IC662
VIDEO CONTROL SIG.
EXPANTION PORT
IC663
TITLE MIX
PB EE/Y
PB Y PROCESS
PB/EE VIDEO
Y/C MIX
REC VIDEO
A/D Y
TITLE Y
TITLE C
COMB FILTER
BUS DECODER
IC661
TITLE MIX
REC Y
IC651
CHROMA PROCESS
PB CONV
ACC
REC CHROMA PROCESS
REC CONV
IC668
TITLE MIX
PB/EE C
PB CHROMA PROCESS
J651 AV
VIDEO
RFU DC OUT
5V
AUDIO L
AUDIO R
L
R
IC551
IC553
IC554
OUTPUT SELECT
L.R
IC555
HEADPHONE AMP
SW-120 BOARD(1/2)
(See page 184.)
J701 LADPHONE
(See page 202.)
MJ-40 BOARD
STEREO MIC UNIT
J751 MIC PLUG IN POWER
J752 DC OUT
(See page 201.)
MC-43 BOARD
IC801
HIC401
IC401
AFM STEREO
AUDIO PROCESS
AUDIO L.R
MIC L.R
AUDIO CONTROL SIG.
EXPANTION PORT
IC402
REC AFM RF
PB AFM RF
AU-60 BOARD (See page 202.)
VIDEO
DATA TO SLV. DATA TO MAST.SCK
(See page 142.)
HR-10 BOARD
REC Y RF
OTL
REC C
REC AFM
REC ATF
PB Y RF
MIDDLE TUNE AMP
PB C RF
PB AFM RF
REC/PB AMP
CH2.CH1'
CH1
PB RF
REC PCM
PB PCM RF
DR SWP
IC204
E/L DISCRIMINATOR
E DET
FE ON
FLYING ERASE OSC
FE
DRUM
CH2.CH1'
CH1
FLYING ERASE
M901 DRUM MOTOR
DRUM PG.FG
DRUM U.V.W.COM
M902 CAPSTAN MOTOR
CAPSTAN FG
CAP U.V.W
IC004
FG.PG AMP
DPG.DFG
CFG
IC006 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC005
CAPSTAN MOTOR DRIVE
CAP VS
(See page 205.)
FU-71 BOARD (1/2)
IC101 (1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
DRUM ERROR
CAP ERROR

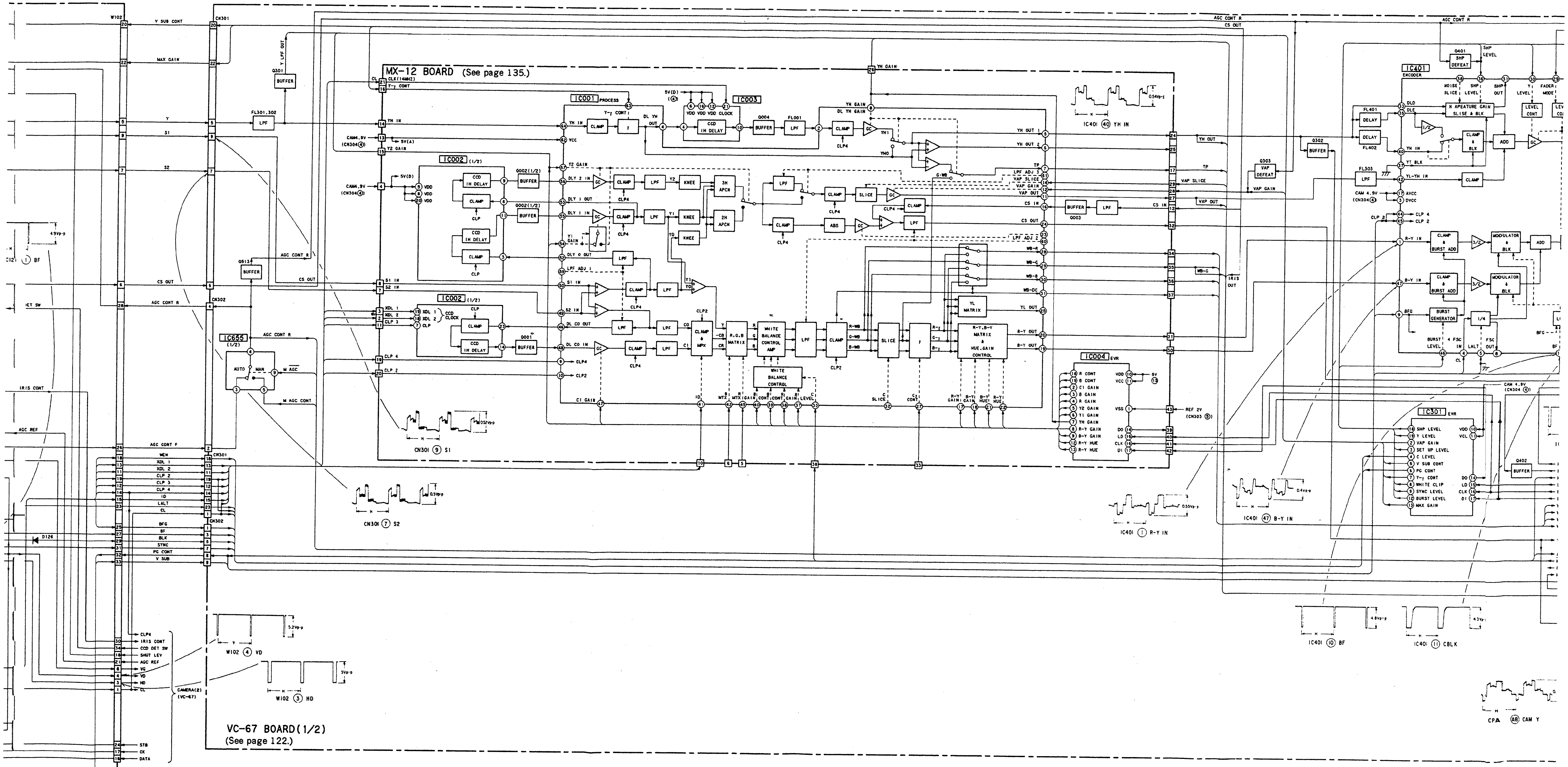

FC-28 BOARD
(See page 183.)
S601~606
KEY MATRIX
CAMERA FUNCTION
FK-16 BOARD
(See page 182.)
S501~516
KEY MATRIX
POWER SW & VTR FUNCTION
S201~213.216~218
KEY MATRIX
CAMERA FUNCTION
O-K OUT 5
O-K IN 7
EJECT
IC203
SIRCS CONTROL
IC202
LANC I/O
SIRCS SIG
LANC SIG
REMOTE CONTROL RECEIVER
SW-120 BOARD
(1/2)
(See page 184.)
S701.702
STANBY START/STOP
J702
REMOTE
(See page 205.)
FU-71 BOARD
(1/2)
CAM UNREG
M UNREG
UNREG
VTR POWER
F101
F102
F103
J101
MAIN BATTERY
SS 5V
VI 5V
AU 5V
EVF 5V
DC-DC CONVERTER
IC101
(1/2)
S101
EJECT
EJECT
SS-99 BOARD(See page 147, 167.)
DATA TO SLV.DATA TO MAST .SCK
.SCK
IC301
IC302
IC303
A/D Y
IC101
IC102
IC103
VOW
VOB
CHARACTOR GENERATOR
DATA TO MODE
DATA TO EE
EE SCK
IC008
NON-VOLATILE MEMORY
IC007
SELECT1~3
CHIP SELECT
CHIP SELECT SIG.
CC-33 BOARD
(See page 189.)
IC910
IC911
REC PCM
PB PCM RF
DR SWP
INDEX PROCESS
IC001
MECHANISM CONTROL
BOARD
T REEL FG SENSOR
T REEL FG
REC PROOF
MP HG
ME/MP
VIDEO,AUDIO DIGITAL TITLER CONTROL SIG.
SENSOR
TOP SENS
TAPE TOP DETECT
TOP SENS
LED DRIVE
T/E LD
-89 BOARD
S REEL FG SENSOR
S REEL FG
END SENS
TAPE END DETECT
END SENS
MODE SWITCH
MODE SWO~2
CC DOWN
CC DOWN
e 188.)
DEW SENS
DEW SENSOR
LOAD,UNLOAD
LOAD, UNLOAD
M903
LOARDING MOTOR
(See page 205.)
FU-71 BOARD
(1/2)
IC101
(1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
IC006 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC005
CAPSTAN MOTOR DRIVE
CAP VS
DRUM ERROR
IC006 (1/2)
INTEG-RATOR
DRUM D/A
CAP ERROR
IC003
LPF
CAP PWM
RF SWP
SERVO
CLOG
SP/LP DET
DRM FG
DRM PG
CAP FG
ATF ERROR
IC202
CLOG. SP/LP DET
PB RF
IC150
ATF SERVO
PB RF
REC ATF
EVF OUT
(See page 209, 210.)
VF-26 BOARD
OR
VF-27 BOARD
DH1.DH2
T901
HV
H
DY
V
H
H OUT
CRT DRIVE
IC901
CRT
G1


BOARD
J101
MAIN BATTERY
S101
CT

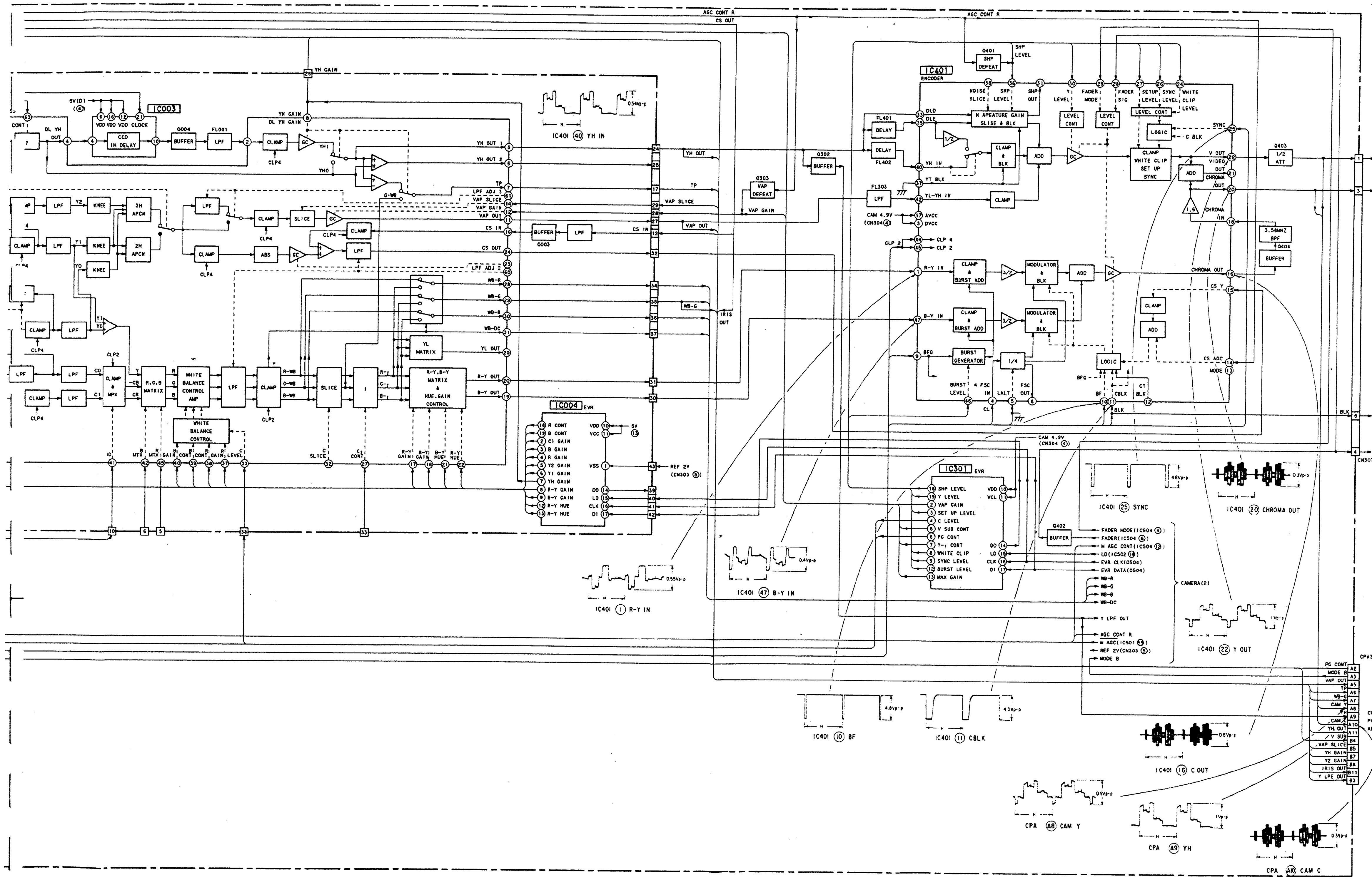

ARD
DH1,DH2
HV
H
DY
V
H
CRT
G1

3-3. CAMERA (1) BLOCK DIAGRAM


CD-20 BOARD
(See page 125.)
DT-77 BOARD
(See page 133.)
IC101
CCD IMAGER
Q101
BUFFER
Q101 ⑤ CCD OUT
IC101 ③ V2 ⑥ V1
IC101 ① V4 ② V3
IC101 ⑰ PG
IC101 ⑳ H2
IC101 ⑲ H1
14.318MHz
Q122
PG CONT
Q123, 125
V SUB REG
D102
RECT
Q126
V SUB CONT
IC051
SIGNAL SEPARATION
AGC/IRIS CONTROL
SAMPL. HOLD
AGC
CLAMP
LPF
CLAMP BLANKING
GATE
MAX
SLICE
OR
MODE SWITCH
BLANKING
WINDOW
VG (3Vdc)
Y OUT
S1 OUT
S2 OUT
CS OUT
DET OUT
IRIS OUT
IC003
V DRIVE
IC002
TIMING GENERATOR
IC001
ROM
Q001
Q002
VEE REG
Q003
Q137
BUFFER
SHUT LEV
Q136
CS MODE SWITCH
Q133
WINDOW
Q121
AGC DET
D128
Q132
WINDOW
Q131
IRIS DET
IRIS CONT
Q127
AGC REF
Q135
BUFFER
AGC CONT F
Q129
WINDOW PULSE GENERATOR
IC121
SYNC GENERATOR
PHASE COMP
DIVIDER
D126
X121
28.63636MHz
OSC
BPF
Q102
BUFFER
IC121 ㉜ BLK
IC121 ① BF
IC121 ㉛ SYNC
W102
CN301
CN302
V SUB CONT
MAX GAIN
Y
S1
S2
CL OUT
AGC CONT R
CCD DET SW
CAMERA(2)
(VC-67)
STB
CK
DATA



MX-12 BOARD (See page 135.)
VC-67 BOARD(1/2)
(See page 122.)
IC001 PROCESS
IC002 (1/2)
IC003
IC004 EVR
IC301 EVR
IC401 ENCODER
IC655 (1/2)
W102
CN301
CN302
V SUB CONT
MAX GAIN
Y
S1
S2
CS OUT
AGC CONT R
AGC CONT F
AGC REF
IRIS CONT
Q301 BUFFER
Q513 BUFFER
FL301,302 LPF
Y LPF OUT
AUTO
MAN
M AGC
M AGC CONT
YH IN
CAM4.9V (CN304④)
5V(A)
5V(B)
Y2 GAIN
CCD 1H DELAY
CLAMP
Q002(1/2) BUFFER
Q001 BUFFER
Q004 BUFFER
FL001 LPF
CLP
DLY 2 IN
DLY 1 OUT
DLY 1 IN
DLY 0 OUT
Y1 GAIN
LPF ADJ 1
S1 IN
S2 IN
XDL 1
XDL 2
CLP 3
CLP 4
CLP 2
CCD CLOCK
DL C0 OUT
DL C0 IN
C1 GAIN
KNEE
3H APCN
2H APCN
LPF
CLP4
CLAMP & MPX
R,G,B MATRIX
WHITE BALANCE CONTROL AMP
WHITE BALANCE CONTROL
SLICE
ABS
GC
YH GAIN
DL YH GAIN
YH1
YH0
G-WB
YH OUT 1
YH OUT 2
TP
LPF ADJ 2
VAP SLICE
VAP GAIN
VAP OUT
CS IN
CS OUT
Q003
WB-R
WB-G
WB-B
WB-DC
YL MATRIX
YL OUT
R-Y,B-Y MATRIX & HUE,GAIN CONTROL
R-Y OUT
B-Y OUT
R CONT
B CONT
C1 GAIN
B GAIN
R GAIN
Y2 GAIN
Y1 GAIN
YH GAIN
R-Y GAIN
B-Y GAIN
R-Y HUE
B-Y HUE
VDD
VCC
VSS
DO
LD
CLK
DI
REF 2V (CN303 ⑤)
IRIS OUT
Q303 VAP DEFEAT
Q302 BUFFER
Q401 SHP DEFEAT
SHP LEVEL
NOISE SLICE
SHP LEVEL
SHP OUT
Y LEVEL
FADER MODE
H APEATURE GAIN SLISE & BLK
LEVEL CONT
FL401 DELAY
FL402 DELAY
FL303 LPF
1/2
CLAMP & BLK
ADD
YT BLK
YL-YH IN
AVCC
DVCC
CLP 2
R-Y IN
B-Y IN
BFG
CLAMP & BURST ADD
MODULATOR & BLK
BURST GENERATOR
1/4
BURST LEVEL
4 FSC IN
LALT
FSC OUT
CAM 4.9V (CN304 ④)
SHP LEVEL
Y LEVEL
VAP GAIN
SET UP LEVEL
C LEVEL
V SUB CONT
PG CONT
Y-Y CONT
WHITE CLIP
SYNC LEVEL
BURST LEVEL
MAX GAIN
Q402 BUFFER
WEN
XDL 1
XDL 2
CLP 2
CLP 3
CLP 4
ID
LALT
CL
BFG
BF
BLK
SYNC
PG CONT
V SUB
D126
CLP4
IRIS CONT
CCD DET SW
SHUT LEV
AGC REF
VG
VD
HD
CL
CAMERA(2) (VC-67)
STB
CK
DATA
4.9Vp-p
IC121 ① BF
0.52Vp-p
CN301 ⑨ S1
0.5Vp-p
CN301 ⑦ S2
5.2Vp-p
W102 ④ VD
5Vp-p
W102 ③ HD
0.54Vp-p
IC401 ㊵ YH IN
0.55Vp-p
IC401 ① R-Y IN
0.4Vp-p
IC401 (47) B-Y IN
4.8Vp-p
IC401 ⑩ BF
4.3Vp-p
IC401 ⑪ CBLK
CPA (48) CAM Y


AGC CONT R
CS OUT
YH GAIN
IC003
5V(D)
VDD VDD VDD CLOCK
CCD 1H DELAY
DL YH OUT
Q004 BUFFER
FL001 LPF
CLAMP
CLP4
GC
YH GAIN
DL YH GAIN
YH1
YH0
YH OUT 1
YH OUT 2
TP
LPF ADJ 3
VAP SLICE
VAP GAIN
VAP OUT
CS IN
CS OUT
LPF ADJ 2
WB-R
WB-G
WB-B
WB-DC
YL OUT
R-Y OUT
B-Y OUT
KNEE
3H APCH
2H APCH
LPF
SLICE
ABS
BUFFER
Q003
YL MATRIX
R-Y, B-Y MATRIX & HUE, GAIN CONTROL
CLAMP & MPX
R.G.B MATRIX
WHITE BALANCE CONTROL AMP
WHITE BALANCE CONTROL
CLP2
ID
B MTX
R MTX
GAIN
B CONT
R CONT
R GAIN
B GAIN
LEVEL
C SLICE
C CONT
R-Y GAIN
B-Y GAIN
B-Y HUE
R-Y HUE
IC004 EVR
R CONT
B CONT
C1 GAIN
B GAIN
R GAIN
Y2 GAIN
Y1 GAIN
YH GAIN
R-Y GAIN
B-Y GAIN
R-Y HUE
B-Y HUE
VDD
VCC
5V
VSS
REF 2V (CN303 ⑤)
DO
LD
CLK
DI
IC401 ㊵ YH IN
0.54Vp-p
IC401 ① R-Y IN
0.55Vp-p
IC401 ㊼ B-Y IN
0.4Vp-p
YH OUT
VAP OUT
IRIS OUT
Q303 VAP DEFEAT
Q302 BUFFER
AGC CONT R
Q401 SHP DEFEAT
SHP LEVEL
IC401 ENCODER
NOISE SLICE
SHP LEVEL
SHP OUT
Y LEVEL
FADER MODE
FADER SIG
SETUP LEVEL
SYNC LEVEL
WHITE CLIP LEVEL
DLD
DLE
H APEATURE GAIN SLISE & BLK
LEVEL CONT
LOGIC
C BLK
SYNC
FL401 DELAY
FL402 DELAY
1/2
YH IN
YT BLK
CLAMP & BLK
ADD
CLAMP WHITE CLIP SET UP SYNC
V OUT
VIDEO OUT
CHROMA OUT
CHROMA IN
1.6
Q403 1/2 ATT
Y OUT
C OUT
FL303 LPF
YL-YH IN
CAM 4.9V (CN304 ④)
AVCC
DVCC
CLP 2
CLP 4
R-Y IN
B-Y IN
CLAMP & BURST ADD
3/2
MODULATOR & BLK
CHROMA OUT
CS Y
3.58MHZ BPF
Q404 BUFFER
BFG
BURST GENERATOR
1/4
BURST LEVEL
4 FSC IN
LALT
FSC OUT
CL
CS AGC
MODE
BF
CBLK
CT BLK
BLK
VIDEO(1) (VA-45)
FADER
AUDIO (VA-45)
CN307
CAM 4.9V (CN304 ⑥)
IC301 EVR
SHP LEVEL
Y LEVEL
VAP GAIN
SET UP LEVEL
C LEVEL
V SUB CONT
PC CONT
Y-γ CONT
WHITE CLIP
SYNC LEVEL
BURST LEVEL
MAX GAIN
VDD
VCL
DO
LD
CLK
DI
Q402 BUFFER
FADER MODE(IC504 ④)
FADER(IC504 ⑤)
M AGC CONT(IC504 ⑫)
LD(IC502 ⑭)
EVR CLK(Q504)
EVR DATA(Q504)
WB-R
WB-G
WB-B
WB-DC
CAMERA(2)
Y LPF OUT
AGC CONT R
M AGC(IC501 ㊸)
REF 2V(CN303 ⑤)
MODE B
IC401 ㉕ SYNC
4.8Vp-p
IC401 ⑳ CHROMA OUT
0.3Vp-p
IC401 ㉒ Y OUT
1Vp-p
IC401 ⑩ BF
4.8Vp-p
IC401 ⑪ CBLK
4.3Vp-p
IC401 ⑯ C OUT
0.8Vp-p
CPA A8 CAM Y
0.5Vp-p
CPA A9 YH
1Vp-p
CPA A10 CAM C
0.3Vp-p
CPA301
PC CONT
MODE
VAP OUT
TP
WB-
CAM
CAM
YH OUT
V SUB
VAP SLICE
YH GAIN
Y2 GAIN
IRIS OUT
Y LPE OUT
CHECK POINT ARRAY

3-4. CAMERA SYSTEM CONTROL VC-67 BOARD IC501 (MC68HC11E9)

〔Description〕

MC68HC11E9 is a 8-bit one-chip micro controller with a built-in nonvolatile memory (EEPROM). All the camera system, which has been composed by mere than one, can be controlled by only this micro controller. In addition, protocol master control of the LANC communication can be performed.

1. Function

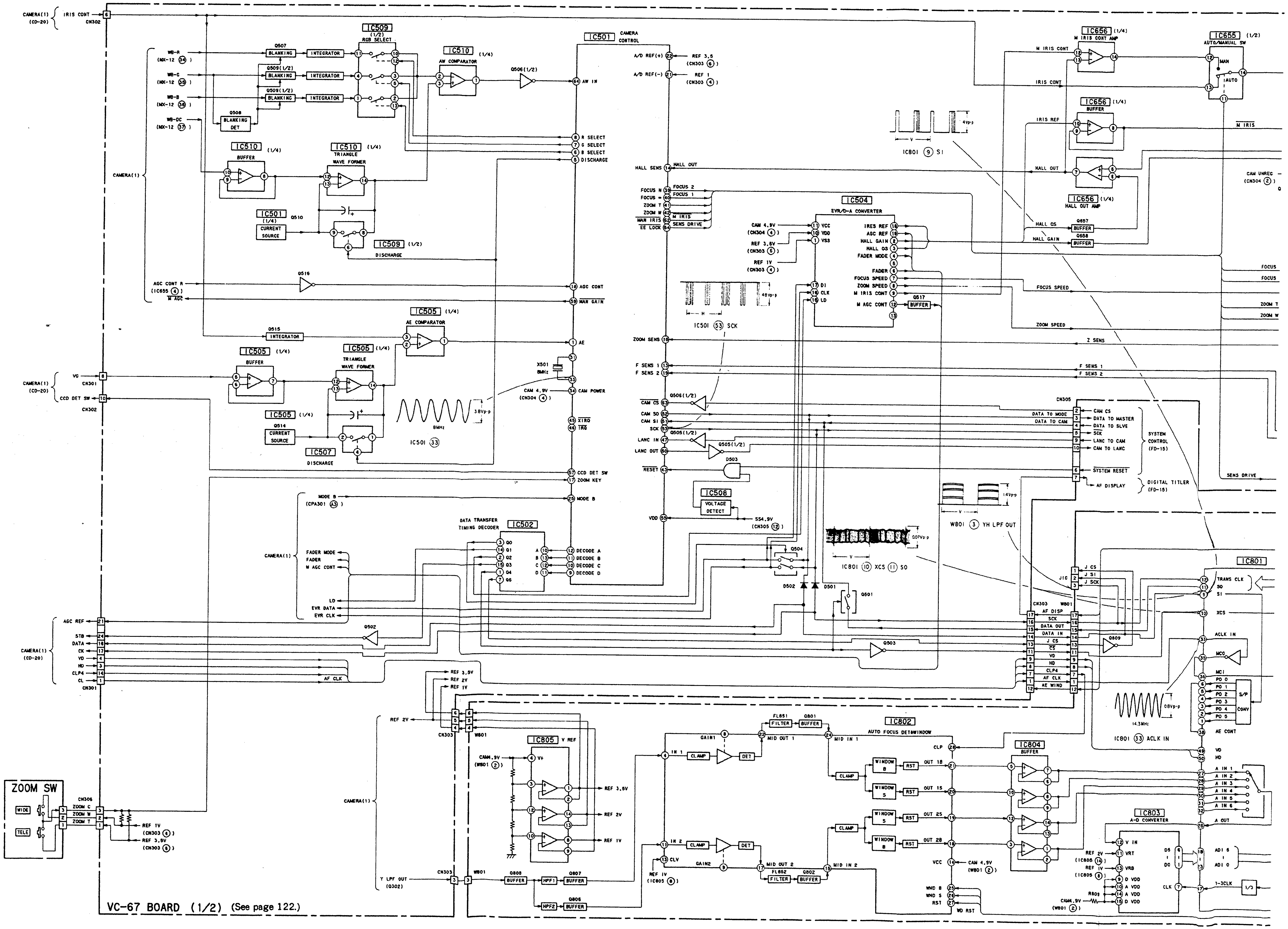
1) EVR Control
2) AWB Control
3) AE Control
4) AF Control
5) LANC communication protocol control

2. Pin Description

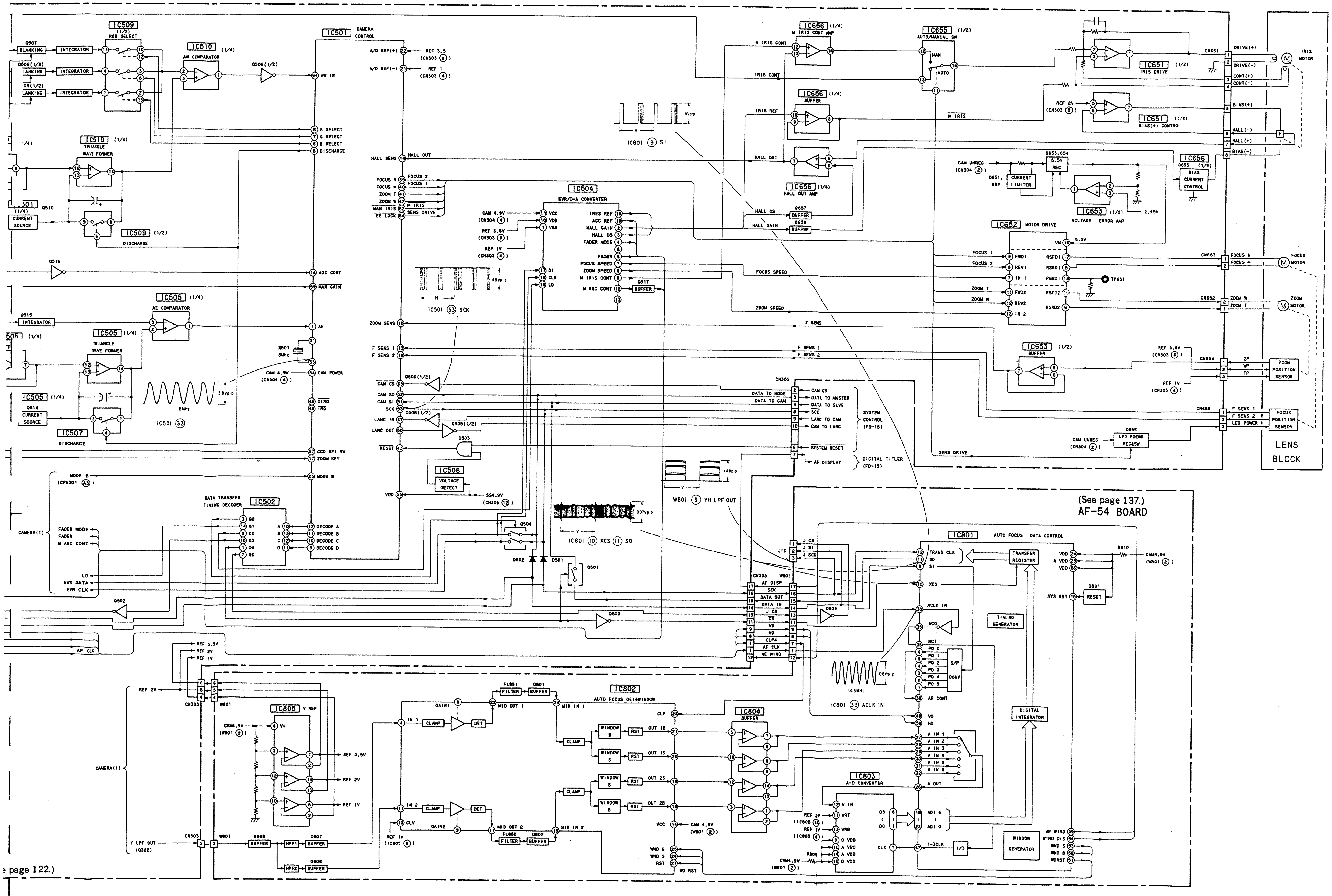
PIN No.	PIN Name	I/O	Function
1	AE	I	AE Integration-type A/D converter comparator input
2	NC	—	——
3	NC	—	——
4	NC	—	——
5	DISCHG	O	AWB. AE Integration-type A/D reset pulse
6	B SELECT	O	AWB Instrumentation line select pulse (blue)
7	G SELECT	O	AWB Instrumentation line select pulse (green)
8	R SELECT	O	AWB Instrumentation line select pulse (red)
9	DECODE D	O	Decode 4 to 10 and expand port with outside IC (4208)
10	DECODE C	O	Decode 4 to 10 and expand port with outside IC (4208)
11	DECODE B	O	Decode 4 to 10 and expand port with outside IC (4208)
12	DECODE A	O	Decode 4 to 10 and expand port with outside IC (4208)
13	F SENS1	I	Focus sensor 1 voltage entrance (Analog input)
14	HALL SENS	I	Hall element voltage input (Analog input)
15	ZOOM SENS	I	Zoom position detection voltage input (Analog input)
16	AN5	I	NC Not used
17	ZOOM KEY	I	Zoom switch voltage input (Analog input)
18	AGC CONT	I	AGC voltage input (Analog input)
19	F SENS2	I	Focus sensor 2 voltage input (Analog input)
20	AN7	I	NC Not used
21	A/D REF(−)	—	Built-in A/D converter the minimum standard voltage (Analog input)
22	A/D REF(+)	—	Built-in A/D converter the minimum standard voltage (Analog input)
23	V_{SS}	—	GND
24	V_{SS}	—	GND
25	MODE B	I	Pull up to SS4.9V
26	NC	—	——
27	MODA	I	Pull down to GND
28	STR A	—	NC Not used
29	E	—	NC Not used
30	STR B	—	NC Not used
31	EXTAL	O	Built-in inverter output for oscillating element
32	NC	—	——
33	XTAL	I	Built-in inverter input for oscillating element
34	CAM POWER	I	Camera power source rise supervision
35	NC	—	——
36	PC1	—	NC
37	PC2	I	Pull up to SS4.9V
38	PC3	—	NC
39	FOCUS N	O	Focus motor N-direction rotating designation
40	FOCUS ∞	O	Focus motor ∞-direction rotating designation
41	ZOOM T	O	Zoom motor T-direction rotating designation
42	ZOOM W	O	Zoom motor W-direction rotating designation
43	$\overline{\text{RESET}}$	I	Reset
44	NC	—	——
45	$\overline{\text{XIRQ}}$	I	Pull up to SS4.9V
46	$\overline{\text{IRQ}}$	I	Pull up to SS4.9V
47	LANC IN	I	LANC input
48	NC	—	——
49	V_{SS}	—	GND
50	LANC OUT	O	LANC output
51	CAM SI	I	Serial data input
52	CAM SO	O	Serial data output
53	SCK	O	Serial clock
54	SENS DRIVE	O	AF sensor Luminous pulse output
55	V_{DD}	—	SS4.9V
56	PAI	—	NC
57	PA6	O	CCD DET switch select
58	OC3	—	NC
59	$\overline{\text{MAN GAIN}}$	O	AGC system automatic/manual select
60	NC	—	——
61	NC	—	——
62	$\overline{\text{MAN IRIS}}$	O	IRIS system automatic/manual select
63	$\overline{\text{CAMCS}}$	I	Camera chip select input
64	$\overline{\text{AW IN}}$	I	AWB Integration-type A/D converter comparator input

r input

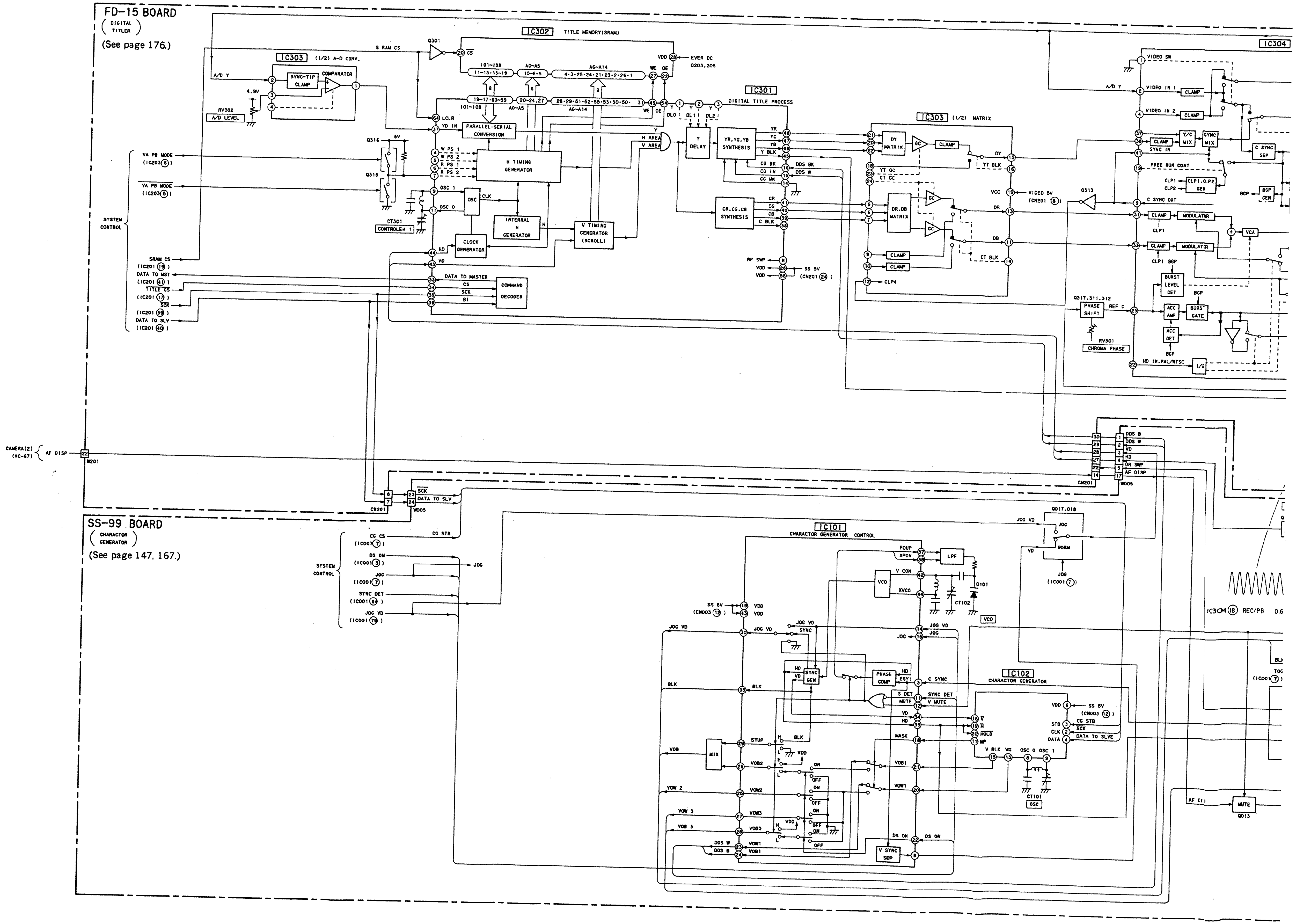
3-5. CAMERA (2) BLOCK DIAGRAM



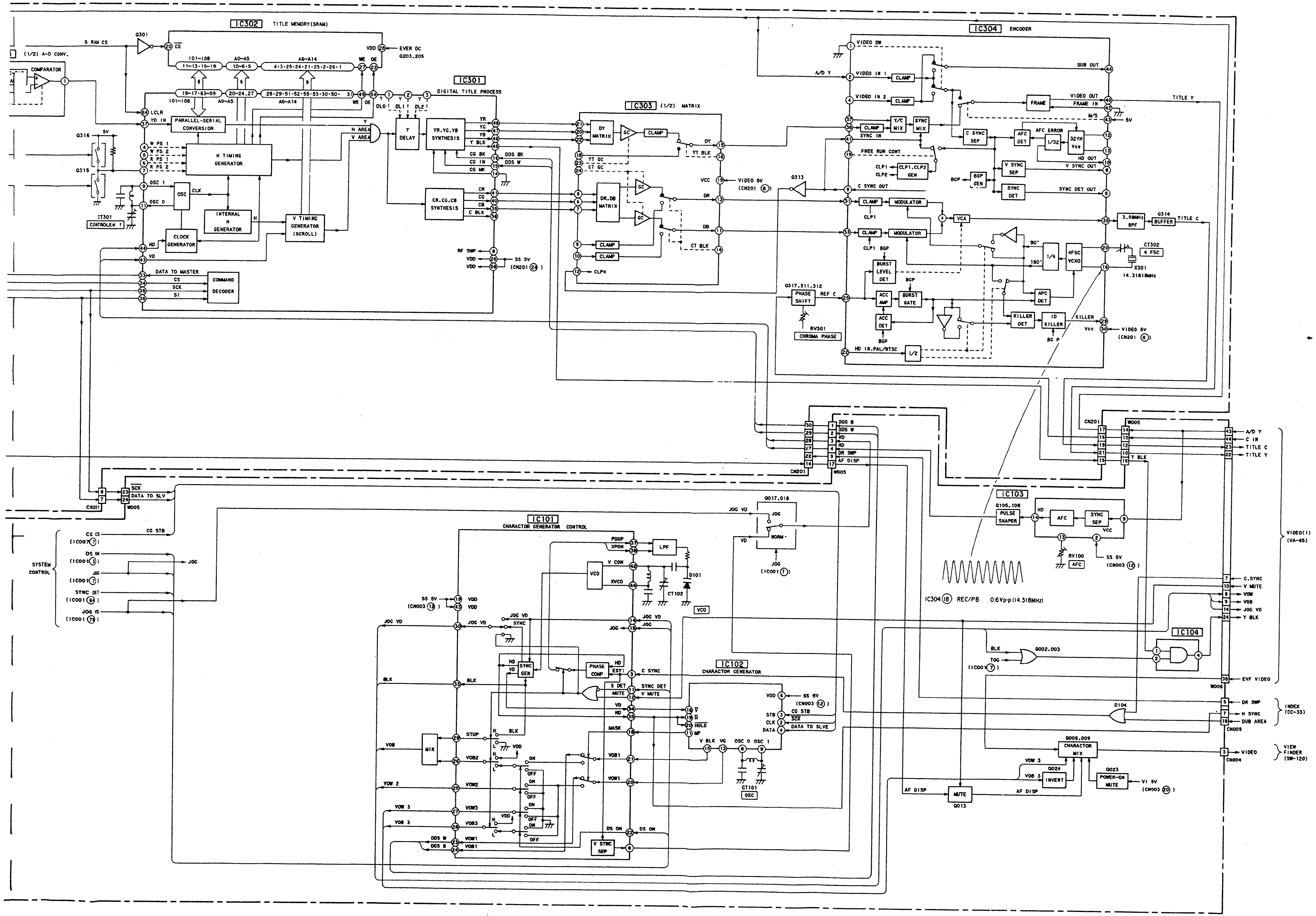
CAMERA(1) (CD-20)
IRIS CONT
CN302
IC509 (1/2) RGB SELECT
IC510 (1/4) AW COMPARATOR
Q506(1/2)
IC501 CAMERA CONTROL
WB-R (MX-12 ㉞)
WB-G (MX-12 ㉟)
WB-B (MX-12 ㊱)
WB-DC (MX-12 ㊲)
Q507 BLANKING
Q509(1/2) BLANKING
INTEGRATOR
Q508 BLANKING DET
IC510 (1/4) BUFFER
IC510 (1/4) TRIANGLE WAVE FORMER
IC501 (1/4) CURRENT SOURCE
Q510
IC509 (1/2) DISCHARGE
A/D REF(+)
A/D REF(−)
REF 3.5 (CN303 ⑥)
REF 1 (CN303 ④)
AW IN
R SELECT
G SELECT
B SELECT
DISCHARGE
HALL SENS
HALL OUT
FOCUS N
FOCUS
ZOOM T
ZOOM W
MAN IRIS
EE LOCK
FOCUS 2
FOCUS 1
M IRIS
SENS DRIVE
IC504 EVR/D-A CONVERTER
CAM 4.9V (CN304 ④)
REF 3.5V (CN303 ⑥)
REF 1V (CN303 ④)
VCC
VDD
VSS
IRES REF
AGC REF
HALL GAIN
HALL OS
FADER MODE
FADER
FOCUS SPEED
ZOOM SPEED
M IRIS CONT
M AGC CONT
Q517 BUFFER
DI
CLK
LD
AGC CONT R (IC655 ④)
M AGC
Q516
AGC CONT
MAN GAIN
IC505 (1/4) AE COMPARATOR
Q515 INTEGRATOR
IC505 (1/4) BUFFER
IC505 (1/4) TRIANGLE WAVE FORMER
IC505 (1/4) Q514 CURRENT SOURCE
IC507 DISCHARGE
AE
X501 8MHz
CAM 4.9V (CN304 ④)
CAM POWER
XTRG
TRG
8MHz
3.8Vp-p
IC501 ㉝
IC501 ㊸ SCK
VG
CN301
CCD DET SW
CN302
CCD DET SW
ZOOM KEY
ZOOM SENS
F SENS 1
F SENS 2
Q506(1/2)
CAM CS
CAM SO
CAM SI
SCK
LANC IN
LANC OUT
Q505(1/2)
D503
RESET
IC508 VOLTAGE DETECT
SS4.9V (CN305 ⑫)
VDD
MODE B (CPA301 Ⓐ3)
MODE B
DATA TRANSFER TIMING DECODER
IC502
DECODE A
DECODE B
DECODE C
DECODE D
FADER MODE
FADER
M AGC CONT
LD
EVR DATA
EVR CLK
CAMERA(1)
Q504
D502
D501
Q501
IC801 ⑨ SI
IC801 ⑩ XCS ⑪ SO
W801 ③ YH LPF OUT
1.4Vp-p
0.07Vp-p
4Vp-p
IC656 (1/4) M IRIS CONT AMP
M IRIS CONT
IRIS CONT
IRIS REF
IC656 (1/4) BUFFER
HALL OUT
IC656 (1/4) HALL OUT AMP
HALL OS
HALL GAIN
Q657 BUFFER
Q658 BUFFER
IC655 (1/2) AUTO/MANUAL SW
MAN
AUTO
M IRIS
CAM UNREG (CN304 ②)
FOCUS
ZOOM T
ZOOM W
FOCUS SPEED
ZOOM SPEED
Z SENS
SENS DRIVE
CN305
DATA TO MODE
DATA TO CAM
CAM CS
DATA TO MASTER
DATA TO SLVE
SCK
LANC TO CAM
CAM TO LANC
SYSTEM CONTROL (FD-15)
SYSTEM RESET
AF DISPLAY
DIGITAL TITLER (FD-15)
IC801
J CS
J SI
J SCK
TRANS CLK
SO
SI
XCS
ACLK IN
MCI
PO 0
PO 1
PO 2
PO 3
PO 4
PO 5
S/P CONV
AE CONT
14.3MHz
0.8Vp-p
IC801 ㉝ ACLK IN
VD
HD
A IN 1
A IN 2
A IN 3
A IN 4
A IN 5
A IN 6
A OUT
AGC REF
STB
DATA
CK
VD
HD
CLP4
CL
CN301
Q502
Q503
Q809
CN303
W801
AF DISP
SCK
DATA OUT
DATA IN
CS
VD
HD
CLP4
AF CLK
AE WIND
REF 3.5V
REF 2V
REF 1V
REF 2V
IC805 Y REF
CAM4.9V (W801 ②)
V+
Y LPF OUT (Q302)
Q808 BUFFER
HPF1
Q807 BUFFER
HPF2
Q806 BUFFER
FL851 FILTER
Q801 BUFFER
IC802 AUTO FOCUS DET&WINDOW
GAIN1
MID OUT 1
MID IN 1
IN 1
CLAMP
DET
IN 2
CLV
REF 1V (IC805 ⑧)
GAIN2
MID OUT 2
FL852 FILTER
Q802 BUFFER
MID IN 2
CLP
WINDOW B
WINDOW S
RST
OUT 18
OUT 15
OUT 25
OUT 28
VCC
CAM 4.9V (W801 ②)
WND B
WND S
RST
WD RST
IC804 BUFFER
IC803 A-D CONVERTER
V IN
VRT
VRB
REF 2V (IC805 ⑭)
REF 1V (IC805 ⑧)
D VDD
A VDD
R805
CAM4.9V (W801 ②)
D5
D0
CLK
ADI 6
ADI 0
1-3CLK
1/3
ZOOM SW
WIDE
TELE
CN306
ZOOM C
ZOOM W
ZOOM T
REF 1V (CN303 ④)
REF 3.5V (CN303 ⑥)
VC-67 BOARD (1/2) (See page 122.)


IC509 (1/2) RGB SELECT
IC510 (1/4) AW COMPARATOR
IC501 CAMERA CONTROL
IC510 (1/4) TRIANGLE WAVE FORMER
IC509 (1/2) DISCHARGE
IC505 (1/4) AE COMPARATOR
IC505 (1/4) TRIANGLE WAVE FORMER
IC505 (1/4) CURRENT SOURCE
IC507 DISCHARGE
IC501 ㉝
IC501 ㊼ SCK
IC504 EVR/D-A CONVERTER
IC508 VOLTAGE DETECT
IC502 DATA TRANSFER TIMING DECODER
IC801 ⑨ SI
IC801 ⑩ XCS ⑪ SO
W801 ③ YH LPF OUT
IC656 (1/4) M IRIS CONT AMP
IC656 (1/4) BUFFER
IC656 (1/4) HALL OUT AMP
IC655 (1/2) AUTO/MANUAL SW
IC651 (1/2) IRIS DRIVE
IC651 (1/2) BIAS(+) CONTRO
IC656 (1/4) BIAS CURRENT CONTROL
IC653 (1/2) VOLTAGE ERROR AMP
IC652 MOTOR DRIVE
IC653 (1/2) BUFFER
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
ZOOM POSITION SENSOR
FOCUS POSITION SENSOR
LENS BLOCK
CN305 SYSTEM CONTROL (FD-15)
DIGITAL TITLER (FD-15)
(See page 137.)
AF-54 BOARD
IC801 AUTO FOCUS DATA CONTROL
TRANSFER REGISTER
TIMING GENERATOR
S/P CONV
DIGITAL INTEGRATOR
WINDOW GENERATOR
IC801 ㉝ ACLK IN
IC802 AUTO FOCUS DETE WINDOW
IC804 BUFFER
IC803 A-D CONVERTER
IC805 V REF
CAMERA(1)
page 122.)

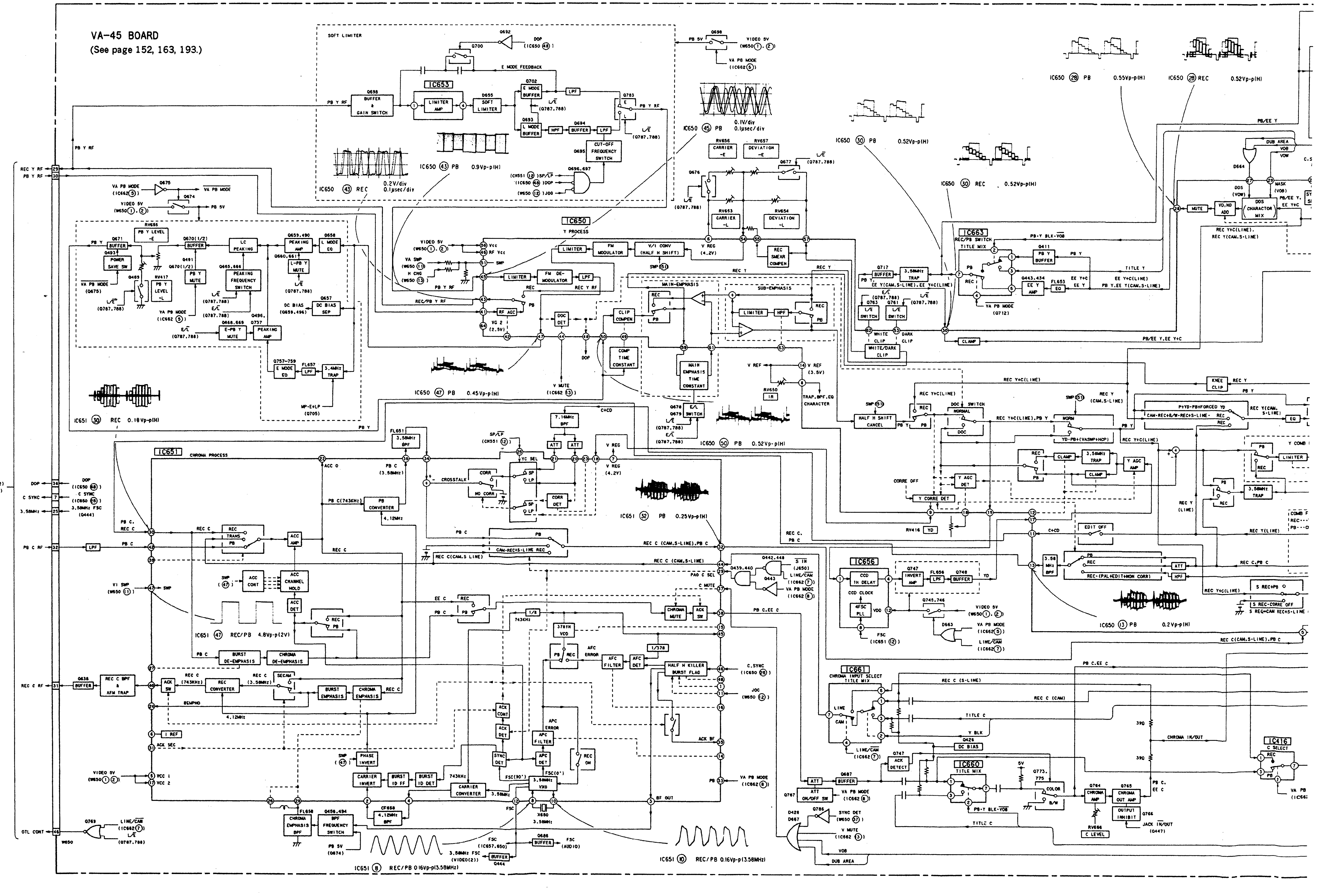
3-6. DIGITAL TITLER BLOCK DIAGRAM

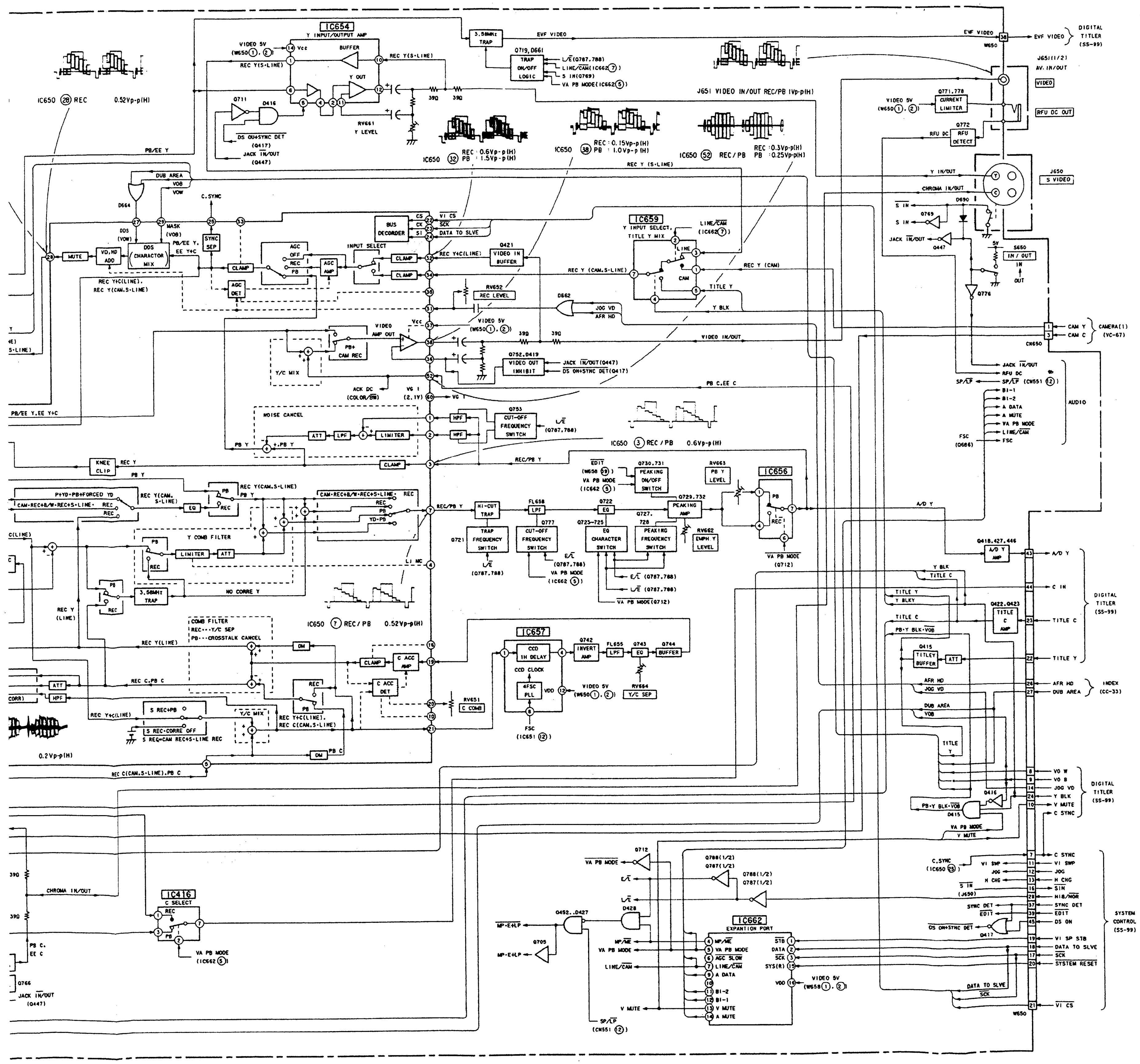


FD-15 BOARD
(DIGITAL TITLER)
(See page 176.)
SS-99 BOARD
(CHARACTOR GENERATOR)
(See page 147, 167.)
IC302 TITLE MEMORY(SRAM)
IC303 (1/2) A-D CONV.
IC301 DIGITAL TITLE PROCESS
IC303 (1/2) MATRIX
IC304
IC101 CHARACTOR GENERATOR CONTROL
IC102 CHARACTOR GENERATOR
SYNC-TIP CLAMP
COMPARATOR
RV302 A/D LEVEL
A/D Y
4.9V
S RAM CS
Q301
EVER DC
Q203,205
PARALLEL-SERIAL CONVERSION
H TIMING GENERATOR
INTERNAL H GENERATOR
V TIMING GENERATOR (SCROLL)
CLOCK GENERATOR
OSC
CLK
CT301 CONTROLER F
COMMAND DECODER
Y DELAY
YR,YG,YB SYNTHESIS
CR,CG,CB SYNTHESIS
DY MATRIX
DR,DB MATRIX
CLAMP
GC
VIDEO 5V
Q313
VIDEO SW
VIDEO IN 1
VIDEO IN 2
Y/C MIX
SYNC MIX
C SYNC SEP
SYNC IN
FREE RUN CONT
CLP1,CLP2 GEN
C SYNC OUT
MODULATOR
VCA
BGP GEN
BURST LEVEL DET
ACC AMP
BURST GATE
ACC DET
HD IN,PAL/NTSC
1/2
Q317,311,312 PHASE SHIFT
REF C
RV301 CHROMA PHASE
VA PB MODE (IC203⑤)
VA PB MODE (IC203⑤)
Q316
Q315
5V
SYSTEM CONTROL
SRAM CS (IC201 ⑲)
DATA TO MST (IC201 ㊸)
TITLE CS (IC201 ⑰)
SCK (IC201 ㊳)
DATA TO SLV (IC201 ㊵)
DATA TO MASTER
CS
SCK
SI
HD
VD
RF SWP
VDD
SS 5V (CN201 ㉔)
DDS BK
DDS W
CAMERA(2) (VC-67)
AF DISP
W201
CN201
W005
DDS B
DDS W
VD
HD
DR SWP
AF DISP
DATA TO SLV
CG CS (IC007⑦)
DS ON (IC001③)
JOG (IC001⑦)
SYNC DET (IC001㊹)
JOG VD (IC001㊻)
CG STB
JOG
Q017,018
JOG VD
NORM
JOG (IC001⑦)
POUP
XPON
LPF
V CON
VCO
XVCO
D101
CT102
SS 5V (CN003 ⑫)
VDD
JOG VD
SYNC
SYNC GEN
PHASE COMP
ESYI
C SYNC
S DET
MUTE
SYNC DET
V MUTE
HOLD
MASK
V BLK
VG
OSC 0
OSC 1
CT101 OSC
STB
CLK
DATA
BLK
STUP
MIX
VOB
VOB2
VOW 2
VOW2
VOW 3
VOW3
VOB 3
VOB3
VOB1
VOW1
DDS W
DDS B
ON
OFF
DS ON
V SYNC SEP
IC304 ⑱ REC/PB
AF DI
MUTE
Q013

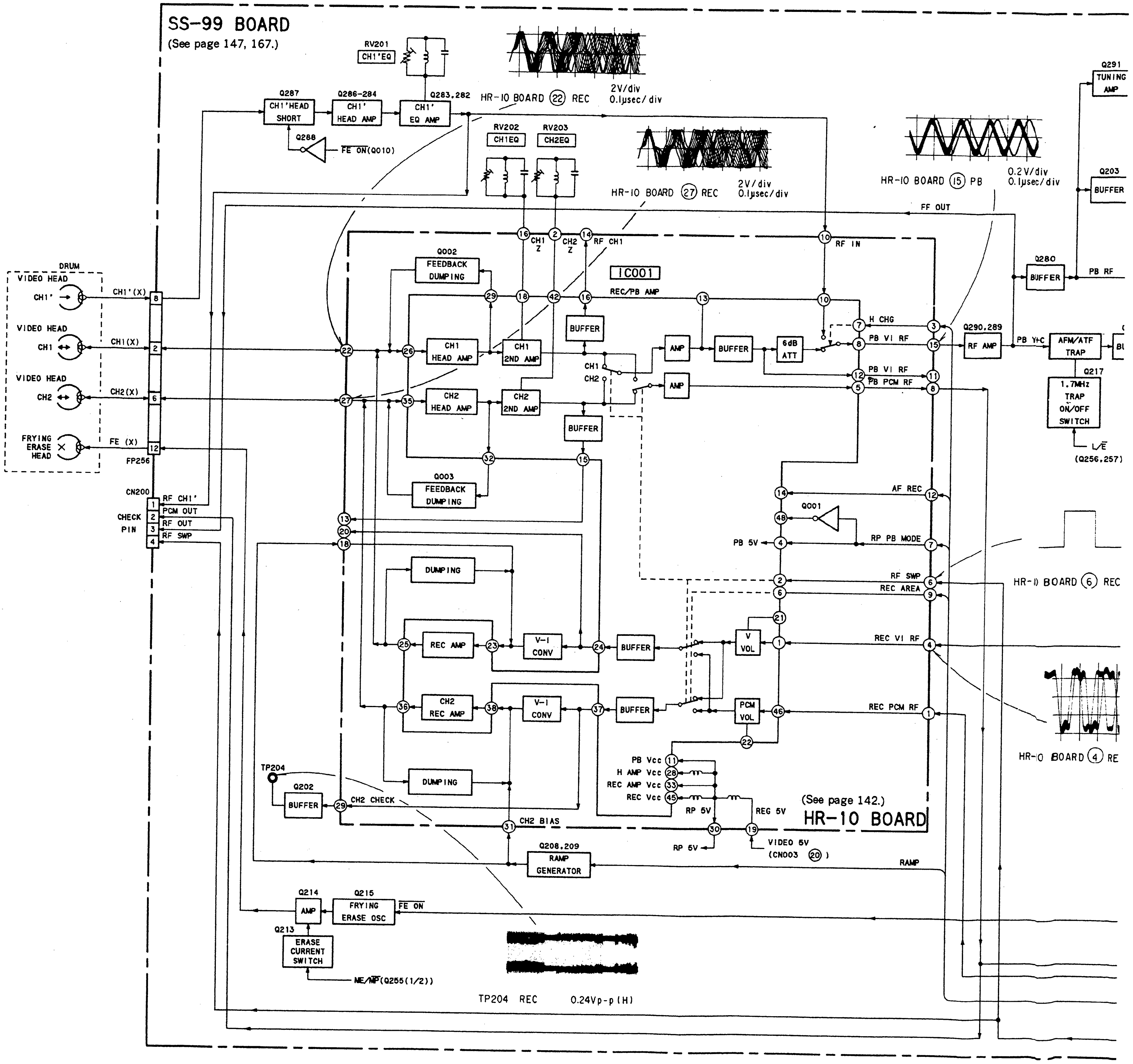

IC302 TITLE MEMORY(SRAM)
IC301 DIGITAL TITLE PROCESS
IC303 (1/2) MATRIX
IC304 ENCODER
IC101 CHARACTOR GENERATOR CONTROL
IC102 CHARACTOR GENERATOR
IC103
IC104
(1/2) A-D CONV.
COMPARATOR
S RAM CS
Q301
EVER DC
Q203,205
PARALLEL-SERIAL CONVERSION
H TIMING GENERATOR
INTERNAL H GENERATOR
V TIMING GENERATOR (SCROLL)
CLOCK GENERATOR
OSC
COMMAND DECODER
DATA TO MASTER
CT301 CONTROLEH f
Q316
Q315
Y DELAY
YR,YG,YB SYNTHESIS
CR,CG,CB SYNTHESIS
DY MATRIX
DR,DB MATRIX
CLAMP
GC
VIDEO 5V (CN201 ⑧)
Q313
VIDEO SW
VIDEO IN 1
VIDEO IN 2
A/D Y
Y/C MIX
SYNC MIX
C SYNC SEP
AFC DET
1/32
32fH Vco
FRAME
SUB OUT
VIDEO OUT
FRAME IN
TITLE Y
V SYNC SEP
SYNC DET
CLP1,CLP2 GEN
BGP GEN
FREE RUN CONT
C SYNC OUT
MODULATOR
VCA
3.58MHz BPF
Q314 BUFFER
TITLE C
CT302 4 FSC
X301 14.31818MHz
1/4
4FSC VCXO
BURST LEVEL DET
ACC AMP
BURST GATE
ACC DET
APC DET
KILLER DET
ID KILLER
Q317,311,312
PHASE SHIFT
REF C
RV301 CHROMA PHASE
HD IN,PAL/NTSC
1/2
VIDEO 5V (CN201 ⑥)
CN201
W005
DDS B
DDS W
VD
HD
DR SWP
AF DISP
A/D Y
C IN
TITLE C
TITLE Y
Y BLK
PULSE SHAPER
Q105,106
AFC
SYNC SEP
RV100 AFC
SS 5V (CN003 ⑫)
IC304 ⑱ REC/PB 0.6Vp-p(14.318MHz)
VIDEO(1) (VA-45)
SYSTEM CONTROL
CG CS (IC007 ⑦)
DS IN (IC001 ③)
JOG (IC001 ③)
SYNC DET (IC001 ⑭)
JOG VD (IC001 ⑬)
CG STB
JOG
Q017,018
JOG VD
NORM
LPF
VCO
D101
CT102
SYNC GEN
PHASE COMP
MIX
V SYNC SEP
CT101 OSC
C.SYNC
V MUTE
VOW
VOB
JOG VD
Y BLK
Q002,003
BLK
TOG
EVF VIDEO
W006
D104
DR SWP
H SYNC
DUB AREA
INDEX (CC-33)
CN009
Q008,009 CHARACTOR MIX
Q024 INVERT
Q023 POWER-ON MUTE
VI 5V (CN003 ⑳)
VIDEO
VIEW FINDER (SW-120)
CN004
MUTE Q013
AF DISP

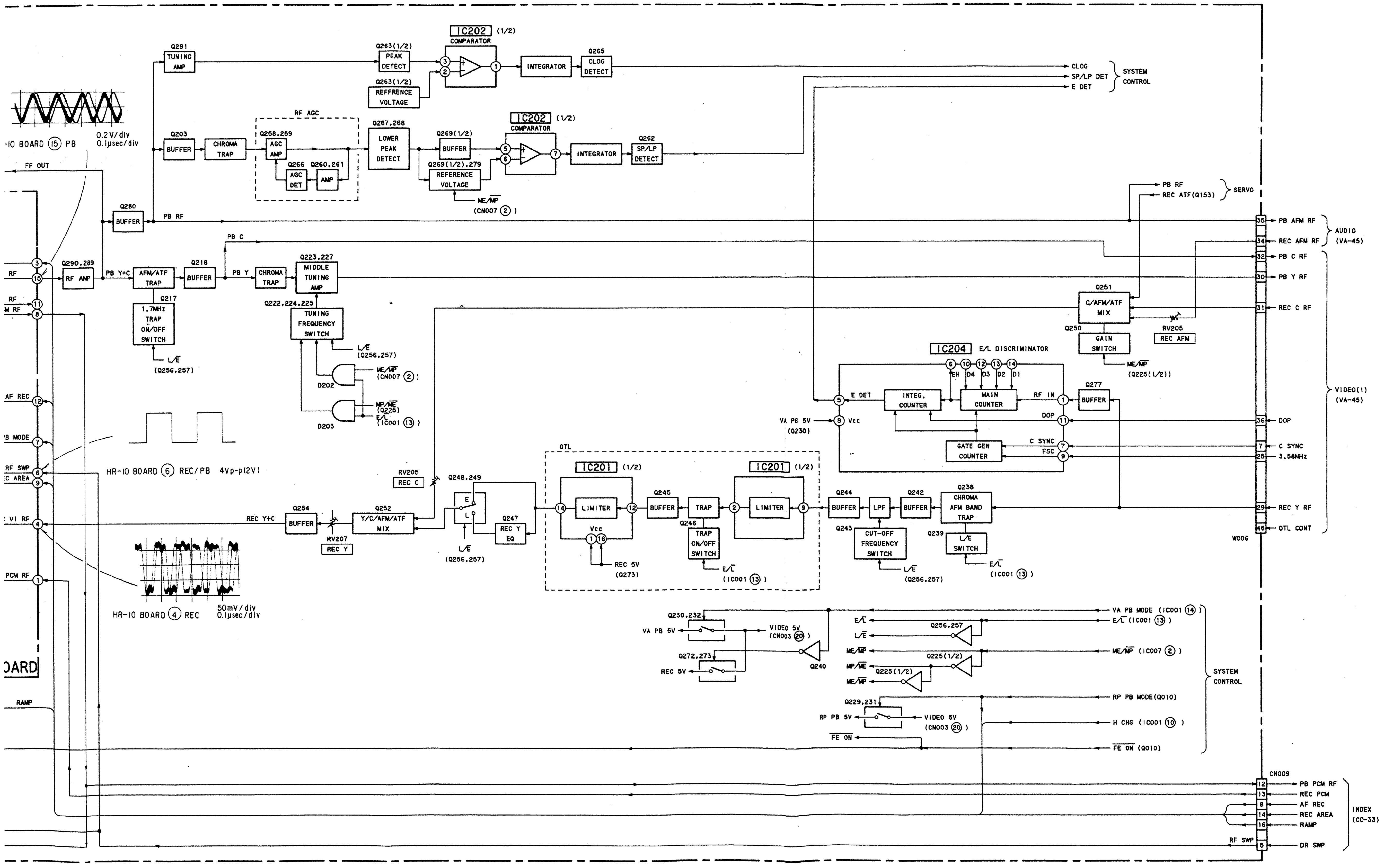
3-7. VIDEO (1) BLOCK DIAGRAM


VA-45 BOARD
(See page 152, 163, 193.)
SOFT LIMITER
IC653
LIMITER AMP
SOFT LIMITER
E MODE BUFFER
L MODE BUFFER
E MODE FEEDBACK
CUT-OFF FREQUENCY SWITCH
BUFFER & GAIN SWITCH
IC650 ㊸ PB 0.9Vp-p(H)
IC650 ㊸ REC 0.2V/div 0.1μsec/div
IC650 ㊺ PB 0.1V/div 0.1μsec/div
IC650
Y PROCESS
LIMITER
FM MODULATOR
V/I CONV (HALF H SHIFT)
FM DE-MODULATOR
LPF
RF AGC
DOC DET
CLIP COMPEN
COMP TIME CONSTANT
MAIN-EMPHASIS
SUB-EMPHASIS
MAIN EMPHASIS TIME CONSTANT
REC SMEAR COMPEN
CARRIER
DEVIATION
IC650 ㊼ PB 0.45Vp-p(H)
IC650 ㊿ PB 0.52Vp-p(H)
IC650 ㉚ PB 0.52Vp-p(H)
IC650 ㉚ REC 0.52Vp-p(H)
IC650 ㉘ PB 0.55Vp-p(H)
IC650 ㉘ REC 0.52Vp-p(H)
IC663
REC/PB SWITCH TITLE MIX
PB Y BUFFER
3.58MHz TRAP
WHITE CLIP
DARK CLIP
WHITE/DARK CLIP
CLAMP
DUB AREA
DOS CHARACTOR MIX
MUTE
VD, HD ADD
KNEE CLIP
HALF H SHIFT CANCEL
Y CORRE DET
Y AGC DET
Y AGC AMP
EDIT OFF
LIMITER
IC651
CHROMA PROCESS
REC TRANS
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACC DET
PB CONVERTER
REC CONVERTER
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
BURST EMPHASIS
CHROMA EMPHASIS
SECAM
CROSSTALK
CORR DET
YC SEL
ATT
CHROMA MUTE
ACK SW
HALF H KILLER BURST FLAG
AFC FILTER
AFC DET
APC ERROR
APC FILTER
APC DET
SYNC DET
PHASE INVERT
CARRIER INVERT
BURST ID FF
BURST ID DET
CARRIER CONVERTER
VXO
CHROMA EMPHASIS BPF
BPF FREQUENCY SWITCH
IC651 ㉜ PB 0.25Vp-p(H)
IC651 ㊼ REC/PB 4.8Vp-p(2V)
IC651 ㉚ REC 0.18Vp-p(H)
IC651 ⑧ REC/PB 0.16Vp-p(3.58MHz)
IC651 ⑩ REC/PB 0.16Vp-p(3.58MHz)
IC656
CCD 1H DELAY
CCD CLOCK
4FSC PLL
INVERT AMP
BUFFER
IC650 ⑬ PB 0.2Vp-p(H)
IC661
CHROMA INPUT SELECT TITLE MIX
IC660
TITLE MIX
ACK DETECT
ATT ON/OFF SW
CHROMA AMP
CHROMA OUT AMP
OUTPUT INHIBIT
C LEVEL
IC416
C SELECT
VIDEO(2) (55-99)
REC Y RF
PB Y RF
DOP
C SYNC
3.58MHz
PB C RF
REC C RF
OTL CONT
W650


IC654
Y INPUT/OUTPUT AMP
VIDEO 5V (W650①,②)
Vcc
BUFFER
REC Y(S·LINE)
Y OUT
Q711
D416
DS ON+SYNC DET (Q417)
JACK IN/OUT (Q447)
RV661 Y LEVEL
390
3.58MHz TRAP
EVF VIDEO
Q719, D661 TRAP ON/OFF LOGIC
L/E(Q787,788)
LINE/CAM(IC662⑦)
S IN(Q769)
VA PB MODE(IC662⑤)
IC650 ㉘ REC 0.52Vp-p(H)
IC650 ㉜ REC : 0.6Vp-p(H) PB : 1.5Vp-p(H)
IC650 ㊳ REC : 0.15Vp-p(H) PB : 1.0Vp-p(H)
IC650 (52) REC/PB REC : 0.3Vp-p(H) PB : 0.25Vp-p(H)
J651 VIDEO IN/OUT REC/PB 1Vp-p(H)
PB/EE Y
DUB AREA
VOB
VOW
D664
C.SYNC
DDS (VOW)
MASK (VOB)
PB/EE Y, EE Y+C
MUTE
VD,HD ADD
DDS CHARACTOR MIX
SYNC SEP
CLAMP
AGC DET
AGC OFF REC PB
AGC AMP
INPUT SELECT
BUS DECORDER
CS CK SI
VI CS
SCK
DATA TO SLVE
REC Y+C(LINE)
Q421 VIDEO IN BUFFER
REC Y+C(LINE), REC Y(CAM,S·LINE)
REC Y (CAM,S·LINE)
RV652 REC LEVEL
D662
JOG VD
AFR HD
VIDEO AMP OUT
PB+ CAM REC
Y/C MIX
Q752,D419 VIDEO OUT INHIBIT
JACK IN/OUT(Q447)
DS ON+SYNC DET(Q417)
VIDEO IN/OUT
ACK DC (COLOR/BW)
VG 1 (2.1V)
PB C,EE C
PB/EE Y,EE Y+C
NOISE CANCEL
ATT
LPF
LIMITER
HPF
Q753 CUT-OFF FREQUENCY SWITCH
L/E (Q787,788)
IC650 ③ REC / PB 0.6Vp-p(H)
KNEE CLIP
REC Y
PB Y
REC/PB Y
P+YD·PB+FORCED YD
CAM·REC+B/W·REC+S·LINE· REC
REC Y(CAM,S·LINE)
EQ
YD·PB
C(LINE)
Y COMB FILTER
LI NC
NO CORRE Y
3.58MHz TRAP
REC Y (LINE)
IC650 ⑦ REC / PB 0.52Vp-p(H)
COMB FILTER
REC···Y/C SEP
PB···CROSSTALK CANCEL
REC Y(LINE)
DM
C ACC AMP
C ACC DET
REC C,PB C
RV651 C COMB
S REC+PB
S REC·CORRE OFF
S REC=CAM REC+S·LINE REC
REC Y+C(LINE), REC C(CAM,S·LINE)
0.2Vp-p(H)
REC C(CAM,S·LINE),PB C
CHROMA IN/OUT
IC416
C SELECT
VA PB MODE (IC662⑤)
PB C, EE C
Q766
JACK IN/OUT (Q447)
HI-CUT TRAP
Q721 TRAP FREQUENCY SWITCH
FL658 LPF
Q777 CUT-OFF FREQUENCY SWITCH
E/L (Q787,788)
Q722 EQ
Q723–725 EQ CHARACTER SWITCH
Q727,728 PEAKING FREQUENCY SWITCH
EDIT (W658 ㊴)
Q730,731 PEAKING ON/OFF SWITCH
Q729,732 PEAKING AMP
RV662 EMPH Y LEVEL
RV663 PB Y LEVEL
IC656
VA PB MODE (Q712)
IC657
CCD 1H DELAY
CCD CLOCK
4FSC PLL
VDD
FSC (IC651 ⑫)
Q742 INVERT AMP
FL655 LPF
Q743 EQ
Q744 BUFFER
RV664 Y/C SEP
IC659
Y INPUT SELECT, TITLE Y MIX
LINE/CAM (IC662⑦)
LINE
CAM
REC Y (CAM)
TITLE Y
Y BLK
EVF VIDEO
W650
DIGITAL TITLER (SS-99)
J651(1/2) AV. IN/OUT
VIDEO
RFU DC OUT
Q771,778 CURRENT LIMITER
Q772 RFU DETECT
RFU DC
Y IN/OUT
CHROMA IN/OUT
J650 S VIDEO
D690
S IN
Q769
JACK IN/OUT
Q447
5V
S650 IN / OUT
Q776
CAM Y
CAM C
CN650
CAMERA(1) (VC-67)
SP/LP (CN551 ⑫)
BI-1
BI-2
A DATA
A MUTE
VA PB MODE
LINE/CAM
FSC (Q686)
AUDIO
A/D Y
Q418,427,446 A/D Y AMP
C IN
TITLE C
Q422,Q423 TITLE C AMP
Q415 TITLEY BUFFER
TITLE Y
Y BLKY
PB·Y BLK·VOB
AFR HD
DUB AREA
INDEX (CC-33)
VO W
VO B
JOG VD
V MUTE
C SYNC
Q416
D415
VA PB MODE
C.SYNC (IC650 ㉕)
VI SWP
JOG
H CHG
S IN (J650)
SIN
H18/NOR
SYNC DET
EDIT
DS ON
DS ON+SYNC DET
Q417
VI SP STB
DATA TO SLVE
SCK
SYSTEM RESET
VI CS
SYSTEM CONTROL (SS-99)
Q712
Q788(1/2) Q787(1/2)
E/L
L/E
Q452, D427
D428
MP·E+LP
Q705
MP/ME
IC662
EXPANTION PORT
VA PB MODE
AGC SLOW
LINE/CAM
A DATA
BI-2
BI-1
V MUTE
A MUTE
STB
DATA
SCK
SYS(R)
VDD
VIDEO 5V (W658①,②)
SP/LP (CN551 ⑫)

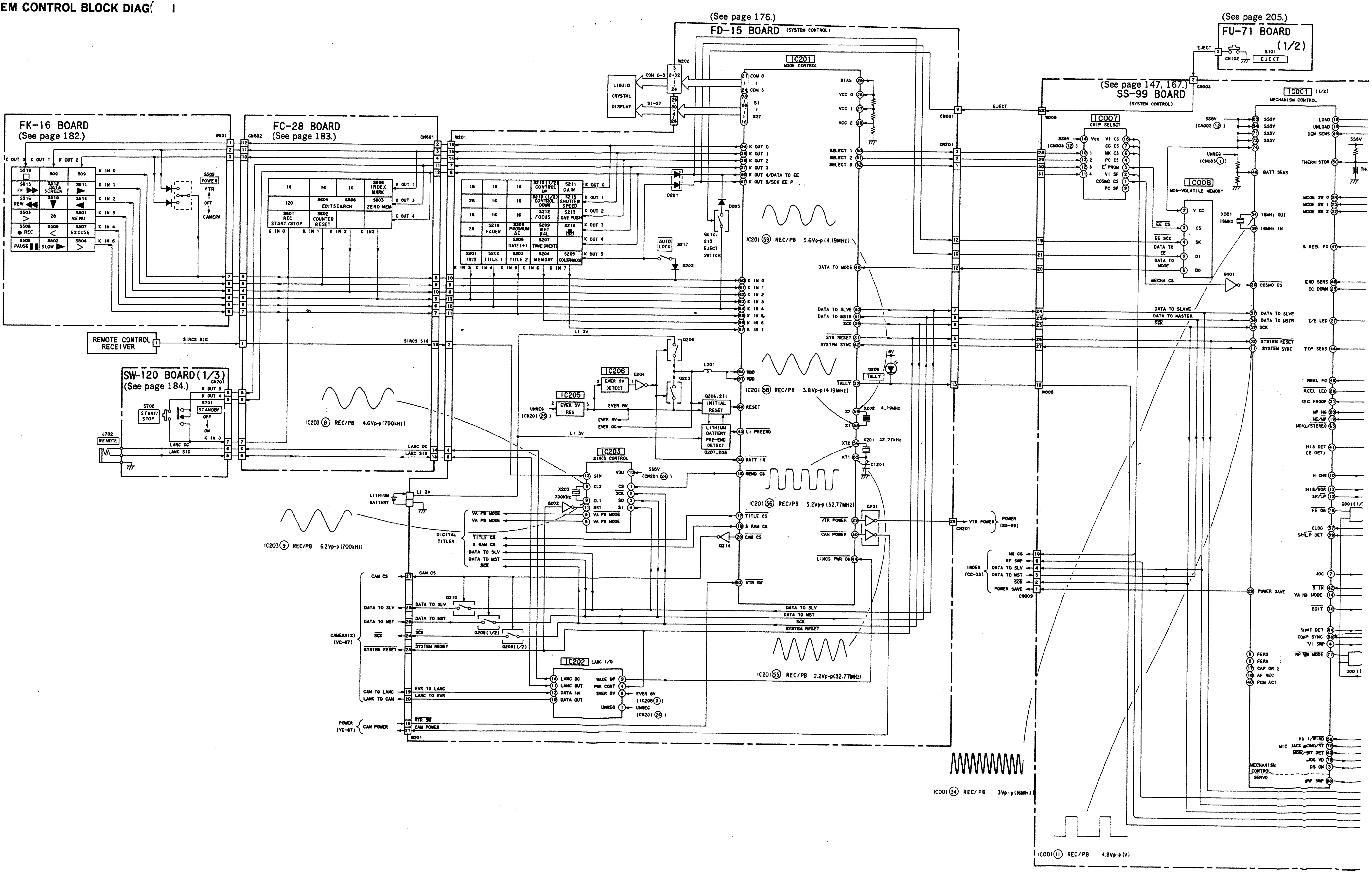
3-8. VIDEO (2) BLOCK DIAGRAM

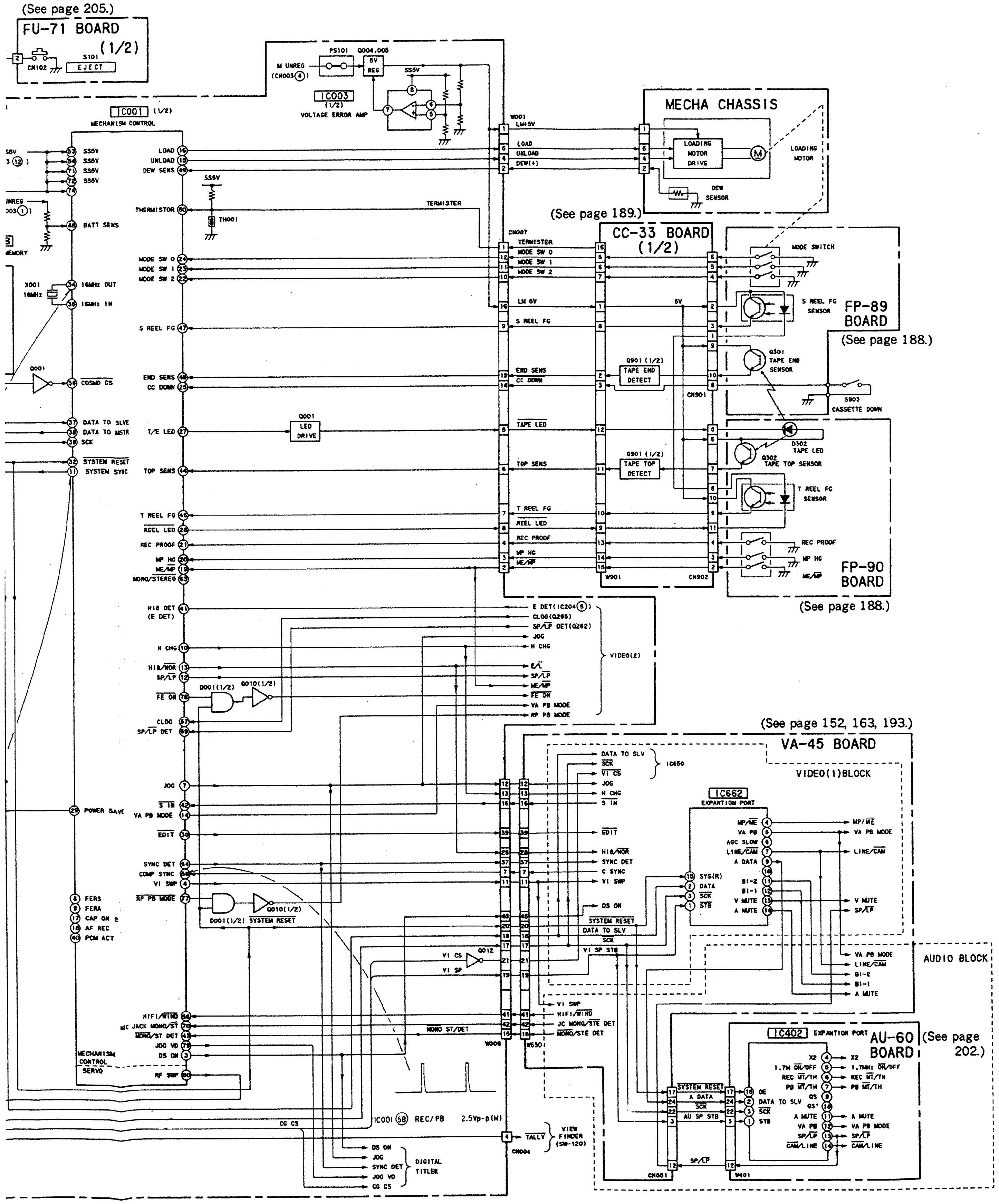

SS-99 BOARD
(See page 147, 167.)
RV201
CH1'EQ
Q287
CH1'HEAD SHORT
Q286-284
CH1' HEAD AMP
CH1' EQ AMP
Q283,282
HR-10 BOARD ㉒ REC
2V/div
0.1μsec/div
Q288
FE ON(Q010)
RV202
CH1EQ
RV203
CH2EQ
HR-10 BOARD ㉗ REC
2V/div
0.1μsec/div
HR-10 BOARD ⑮ PB
0.2V/div
0.1μsec/div
Q291
TUNING AMP
Q203
BUFFER
FF OUT
Q280
BUFFER
PB RF
DRUM
VIDEO HEAD
CH1'
VIDEO HEAD
CH1
VIDEO HEAD
CH2
FRYING ERASE HEAD
CH1'(X)
CH1(X)
CH2(X)
FE (X)
FP256
CN200
CHECK PIN
RF CH1'
PCM OUT
RF OUT
RF SWP
CH1 Z
CH2 Z
RF CH1
RF IN
IC001
REC/PB AMP
Q002
FEEDBACK DUMPING
BUFFER
CH1 HEAD AMP
CH1 2ND AMP
CH2 HEAD AMP
CH2 2ND AMP
AMP
BUFFER
6dB ATT
AMP
H CHG
PB V1 RF
PB V1 RF
PB PCM RF
Q290,289
RF AMP
PB Y+C
AFM/ATF TRAP
Q217
1.7MHz TRAP ON/OFF SWITCH
L/E
(Q256,257)
Q003
FEEDBACK DUMPING
AF REC
Q001
RP PB MODE
PB 5V
RF SWP
REC AREA
HR-10 BOARD ⑥ REC
DUMPING
REC AMP
V-1 CONV
BUFFER
V VOL
REC V1 RF
CH2 REC AMP
V-1 CONV
BUFFER
PCM VOL
REC PCM RF
HR-10 BOARD ④ REC
DUMPING
PB Vcc
H AMP Vcc
REC AMP Vcc
REC Vcc
RP 5V
REG 5V
(See page 142.)
HR-10 BOARD
TP204
Q202
BUFFER
CH2 CHECK
CH2 BIAS
RP 5V
VIDEO 5V
(CN003 ⑳)
Q208,209
RAMP GENERATOR
RAMP
Q214
AMP
Q215
FRYING ERASE OSC
FE ON
Q213
ERASE CURRENT SWITCH
ME/MP(Q255(1/2))
TP204 REC 0.24Vp-p(H)



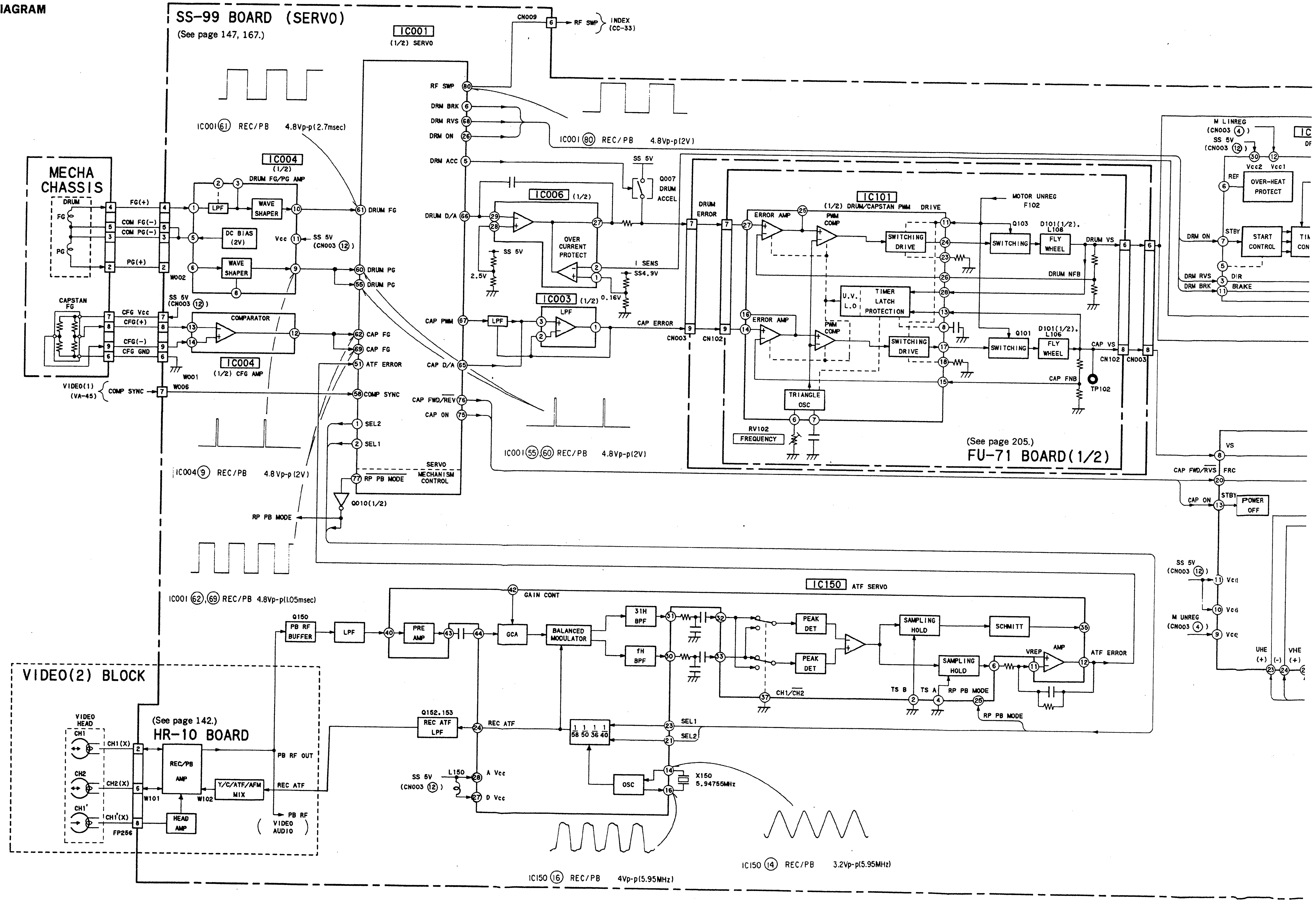
Q291
TUNING AMP
Q263(1/2)
PEAK DETECT
Q263(1/2)
REFFRENCE VOLTAGE
IC202 (1/2)
COMPARATOR
INTEGRATOR
Q265
CLOG DETECT
CLOG
SP/LP DET
E DET
SYSTEM CONTROL
RF AGC
Q203
BUFFER
CHROMA TRAP
Q258,259
AGC AMP
Q266
AGC DET
Q260,261
AMP
Q267,268
LOWER PEAK DETECT
Q269(1/2)
BUFFER
Q269(1/2),279
REFERENCE VOLTAGE
ME/MP
(CN007 ②)
IC202 (1/2)
COMPARATOR
INTEGRATOR
Q262
SP/LP DETECT
0.2V/div
0.1μsec/div
-10 BOARD ⑮ PB
FF OUT
Q280
BUFFER
PB RF
PB RF
REC ATF(Q153)
SERVO
PB AFM RF
REC AFM RF
AUDIO (VA-45)
PB C
PB C RF
PB Y RF
Q290,289
RF AMP
PB Y+C
AFM/ATF TRAP
Q218
BUFFER
PB Y
CHROMA TRAP
Q223,227
MIDDLE TUNING AMP
Q217
1.7MHz TRAP ON/OFF SWITCH
L/E
(Q256,257)
Q222,224,225
TUNING FREQUENCY SWITCH
L/E
(Q256,257)
ME/MP
(CN007 ②)
D202
MP/ME
(Q225)
E/L
(IC001 ⑬)
D203
Q251
C/AFM/ATF MIX
Q250
GAIN SWITCH
ME/MP
(Q225(1/2))
RV205
REC AFM
REC C RF
IC204 E/L DISCRIMINATOR
EH D4 D3 D2 D1
E DET
INTEG. COUNTER
MAIN COUNTER
RF IN
Q277
BUFFER
DOP
VA PB 5V
(Q230)
Vcc
C SYNC
FSC
GATE GEN COUNTER
C SYNC
3.58MHz
VIDEO(1) (VA-45)
RF
RF
M RF
AF REC
B MODE
RF SWP
C AREA
VI RF
PCM RF
HR-10 BOARD ⑥ REC/PB 4Vp-p(2V)
HR-10 BOARD ④ REC
50mV/div
0.1μsec/div
OARD
RAMP
RV205
REC C
Q248,249
E
L
L/E
(Q256,257)
Q247
REC Y EQ
REC Y+C
Q254
BUFFER
RV207
REC Y
Q252
Y/C/AFM/ATF MIX
OTL
IC201 (1/2)
LIMITER
Vcc
REC 5V
(Q273)
Q245
BUFFER
TRAP
Q246
TRAP ON/OFF SWITCH
E/L
(IC001 ⑬)
IC201 (1/2)
LIMITER
Q244
BUFFER
LPF
Q243
CUT-OFF FREQUENCY SWITCH
L/E
(Q256,257)
Q242
BUFFER
Q238
CHROMA AFM BAND TRAP
Q239
L/E SWITCH
E/L
(IC001 ⑬)
REC Y RF
OTL CONT
W006
Q230,232
VA PB 5V
VIDEO 5V
(CN003 ⑳)
Q272,273
REC 5V
Q240
E/L
L/E
Q256,257
ME/MP
MP/ME
ME/MP
Q225(1/2)
Q225(1/2)
VA PB MODE (IC001 ⑭)
E/L (IC001 ⑬)
ME/MP (IC007 ②)
Q229,231
RP PB 5V
VIDEO 5V
(CN003 ⑳)
FE ON
RP PB MODE(Q010)
H CHG (IC001 ⑩)
FE ON (Q010)
SYSTEM CONTROL
CN009
PB PCM RF
REC PCM
AF REC
REC AREA
RAMP
RF SWP
DR SWP
INDEX (CC-33)
35 34 32 30 31 36 7 25 29 46 12 13 8 14 16 5

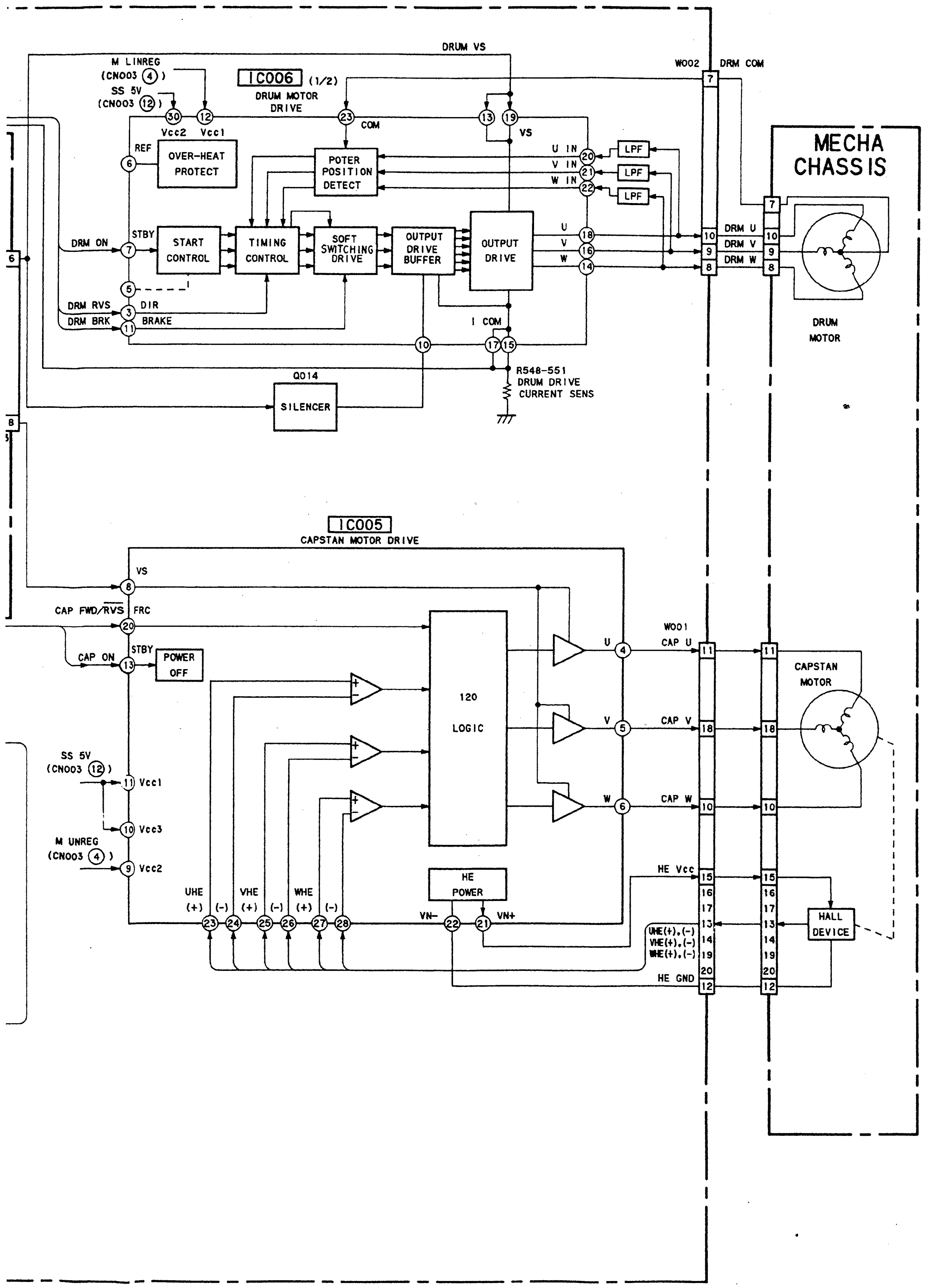
3-9. SYSTEM CONTROL BLOCK DIAG


FK-16 BOARD
(See page 182.)
FC-28 BOARD
(See page 183.)
FD-15 BOARD (SYSTEM CONTROL)
(See page 176.)
FU-71 BOARD (1/2)
(See page 205.)
SS-99 BOARD (SYSTEM CONTROL)
(See page 147, 167.)
SW-120 BOARD(1/3)
(See page 184.)
REMOTE CONTROL RECEIVER
LIQUID CRYSTAL DISPLAY
IC201 MODE CONTROL
IC203 SIRCS CONTROL
IC202 LANC I/O
IC205 EVER 5V REG
IC206 EVER 5V DETECT
IC007 CHIP SELSCT
IC008 NON-VOLATILE MEMORY
IC001 (1/2) MECHANISM CONTROL
INITIAL RESET
LITHIUM BATTERY PRE-END DETECT
LITHIUM BATTERY
DIGITAL TITLER
CAMERA(2) (VC-67)
POWER (VC-67)
INDEX (CC-33)
AUTO LOCK
EJECT
S101 EJECT
J702 REMOTE
S702 START/STOP
S701 STANDBY
IC203 ⑧ REC/PB 4.6Vp-p(700kHz)
IC203 ⑨ REC/PB 6.2Vp-p(700kHz)
IC201 (59) REC/PB 5.6Vp-p(4.19MHz)
IC201 (58) REC/PB 3.8Vp-p(4.19MHz)
IC201 (56) REC/PB 5.2Vp-p(32.77MHz)
IC201 (55) REC/PB 2.2Vp-p(32.77MHz)
IC001 (34) REC/PB 3Vp-p(16MHz)
IC001 ⑪ REC/PB 4.8Vp-p(V)
DATA TO SLV
DATA TO MST
SCK
SYSTEM RESET
SYSTEM SYNC
VTR POWER
CAM POWER
X201 32.77kHz
X202 4.19MHz
X203 700kHz
X001 16MHz


(See page 205.)
FU-71 BOARD (1/2)
S101 EJECT
CN102
IC001 (1/2) MECHANISM CONTROL
IC003 (1/2) VOLTAGE ERROR AMP
PS101
Q004,005 5V REG
M UNREG (CN003 ④)
S5.5V
MECHA CHASSIS
LOADING MOTOR DRIVE
LOADING MOTOR
DEW SENSOR
W001
LOAD
UNLOAD
DEW SENS
THERMISTOR
TERMISTER
TH001
BATT SENS
X001 16MHz
16MHz OUT
16MHz IN
MODE SW 0
MODE SW 1
MODE SW 2
(See page 189.)
CC-33 BOARD (1/2)
CN007
LM 5V
S REEL FG
END SENS
CC DOWN
Q901 (1/2) TAPE END DETECT
Q901 (1/2) TAPE TOP DETECT
TAPE LED
TOP SENS
T REEL FG
REEL LED
REC PROOF
MP HG
ME/MP
W901
CN901
CN902
MODE SWITCH
S REEL FG SENSOR
FP-89 BOARD
(See page 188.)
Q301 TAPE END SENSOR
S903 CASSETTE DOWN
D302 TAPE LED
Q302 TAPE TOP SENSOR
T REEL FG SENSOR
FP-90 BOARD
(See page 188.)
Q001
COSMO CS
DATA TO SLVE
DATA TO MSTR
SCK
SYSTEM RESET
SYSTEM SYNC
T/E LED
Q001 LED DRIVE
MONO/STEREO
HI8 DET (E DET)
H CHG
HI8/NOR
SP/LP
FE ON
CLOG
SP/LP DET
D001(1/2)
Q010(1/2)
E DET (IC204 ⑤)
CLOG (Q285)
SP/LP DET (Q262)
JOG
VIDEO(2)
VA PB MODE
RP PB MODE
(See page 152, 163, 193.)
VA-45 BOARD
VIDEO(1)BLOCK
IC650
IC662 EXPANTION PORT
POWER SAVE
EDIT
SYNC DET
COMP SYNC
VI SWP
C SYNC
DS ON
FERS
FERA
CAP ON 2
AF REC
PCM ACT
Q012
VI CS
VI SP
VI SP STB
AUDIO BLOCK
V MUTE
A MUTE
HIFI/WIND
MIC JACK MONO/ST
MONO/ST DET
JOG VD
CG CS
MECHANISM CONTROL
SERVO
RF SWP
W006
W650
CN004
IC001 ㊳ REC/PB 2.5Vp-p(H)
TALLY
VIEW FINDER (SW-120)
DIGITAL TITLER
IC402 EXPANTION PORT
AU-60 BOARD
(See page 202.)
CN661
W401

3-10. SERVO BLOCK DIAGRAM


SS-99 BOARD (SERVO)
(See page 147, 167.)
IC001
(1/2) SERVO
CN009
RF SWP
INDEX
(CC-33)
IC001 61 REC/PB 4.8Vp-p(2.7msec)
IC001 80 REC/PB 4.8Vp-p(2V)
IC001 55, 60 REC/PB 4.8Vp-p(2V)
IC004 9 REC/PB 4.8Vp-p(2V)
IC001 62, 69 REC/PB 4.8Vp-p(1.05msec)
MECHA CHASSIS
DRUM
FG
PG
CAPSTAN FG
FG(+)
COM FG(−)
COM PG(−)
PG(+)
CFG Vcc
CFG(+)
CFG(−)
CFG GND
W002
W001
W006
SS 5V (CN003 12)
VIDEO(1) (VA-45)
COMP SYNC
IC004
(1/2) DRUM FG/PG AMP
LPF
WAVE SHAPER
DC BIAS (2V)
Vcc
SS 5V (CN003 12)
COMPARATOR
IC004
(1/2) CFG AMP
RF SWP
DRM BRK
DRM RVS
DRM ON
DRM ACC
DRUM D/A
DRUM FG
DRUM PG
CAP FG
ATF ERROR
COMP SYNC
SEL2
SEL1
RP PB MODE
SERVO MECHANISM CONTROL
Q010(1/2)
CAP PWM
CAP D/A
CAP FWD/REV
CAP ON
IC006 (1/2)
OVER CURRENT PROTECT
SS 5V
2.5V
I SENS
SS4.9V
0.16V
IC003 (1/2)
LPF
CAP ERROR
Q007
DRUM ACCEL
CN003
CN102
DRUM ERROR
IC101
(1/2) DRUM/CAPSTAN PWM DRIVE
ERROR AMP
PWM COMP
SWITCHING DRIVE
MOTOR UNREG
F102
Q103
D101(1/2), L108
SWITCHING
FLY WHEEL
DRUM VS
DRUM NFB
U.V. L.O.
TIMER LATCH PROTECTION
Q101
D101(1/2), L106
CAP VS
CAP FNB
TP102
TRIANGLE OSC
RV102 FREQUENCY
(See page 205.)
FU-71 BOARD(1/2)
M LINREG (CN003 4)
SS 5V (CN003 12)
Vcc2 Vcc1
REF
OVER-HEAT PROTECT
DRM ON
STBY
START CONTROL
DRM RVS
DRM BRK
DIR
BRAKE
VS
CAP FWD/RVS
FRC
CAP ON
POWER OFF
SS 5V (CN003 12)
M UNREG (CN003 4)
Vcc
UHE (+) (−)
VHE (+)
IC150 ATF SERVO
GAIN CONT
Q150 PB RF BUFFER
LPF
PRE AMP
GCA
BALANCED MODULATOR
31H BPF
fH BPF
PEAK DET
SAMPLING HOLD
SCHMITT
VREP
AMP
ATF ERROR
CH1/CH2
TS B
TS A
RP PB MODE
Q152,153 REC ATF LPF
REC ATF
SEL1
SEL2
1/58 1/50 1/36 1/40
OSC
X150 5.94755MHz
SS 5V (CN003 12)
L150
A Vcc
D Vcc
IC150 16 REC/PB 4Vp-p(5.95MHz)
IC150 14 REC/PB 3.2Vp-p(5.95MHz)
VIDEO(2) BLOCK
VIDEO HEAD
CH1
CH2
CH1'
CH1(X)
CH2(X)
CH1'(X)
FP256
W101
W102
(See page 142.)
HR-10 BOARD
REC/PB AMP
HEAD AMP
Y/C/ATF/AFM MIX
PB RF OUT
REC ATF
PB RF
VIDEO AUDIO


M LINREG
(CN003 ④)
SS 5V
(CN003 ⑫)
IC006 (1/2)
DRUM MOTOR DRIVE
DRUM VS
W002
DRM COM
COM
VS
Vcc2
Vcc1
REF
OVER-HEAT PROTECT
POTER POSITION DETECT
U IN
V IN
W IN
LPF
MECHA CHASSIS
DRM ON
STBY
START CONTROL
TIMING CONTROL
SOFT SWITCHING DRIVE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
U
V
W
DRM U
DRM V
DRM W
DRM RVS
DRM BRK
DIR
BRAKE
I COM
DRUM MOTOR
Q014
SILENCER
R548-551
DRUM DRIVE CURRENT SENS
IC005
CAPSTAN MOTOR DRIVE
VS
CAP FWD/$\overline{\text{RVS}}$
FRC
CAP ON
STBY
POWER OFF
120 LOGIC
W001
CAP U
CAP V
CAP W
CAPSTAN MOTOR
SS 5V
(CN003 ⑫)
Vcc1
Vcc3
M UNREG
(CN003 ④)
Vcc2
UHE (+) (-)
VHE (+) (-)
WHE (+) (-)
HE POWER
VN-
VN+
HE Vcc
UHE(+),(-)
VHE(+),(-)
WHE(+),(-)
HE GND
HALL DEVICE

3-11. SERVO, SYSTEM CONTROL SYSTEM TERMINAL FUNCTION SS-99 BOARD IC001 (CXP-80116)

PIN No.	Signal Name	I/O	Function	Connection
1	SEL2	O	ATF REF PILOT signal frequency control ATF REF PILOT f_1 f_2 f_3 f_4 SEL 1 H L H L SEL 2 H H L L	ATF IC
2	SEL1	O		CXA1204Q
3	DS ON	O	Data Screen ON/OFF control. Data Screen On and Data Screen key are selected with "H"	VIDEO block
4	VI SWP	O	RF SWP using for Vidoe system Normally, same as RF SWP. When using 'CH only "H" 3Head is used.	VIDEO block
5	DRM ACC	O	DRUM motor acceleration signal Acceleration is selected with "H"	To Drum motor driver CXA8006M
6	DRM BLK	O	DRUM motor brake signal Brake is selected with "H"	To Drum motor driver CXA8006M
7	JOG	O	Normal/JOG mode recognition signal JOG is selected with "H"	R/P Amp VIDEO block
8	FE RA	—	Not used	——
9	FE RS	—		
10	H CHG	O	2CH or 'CH select signal 'CH is selected with "H" Only 3Head is used	VIDEO system R/P Amp
11	SYSTEM SYNC	O	Internal bus communication synchronizing signal (V synchronization)	Mode controller
12	SP/$\overline{\text{LP}}$	O	SP/LP mode recognition signal SP mode is selected with "H"	R/P Amp VIDEO/AUDIO block
13	$\overline{\text{NOR}}$/Hi8	O	Hi8/NOR mode output	VIDEO block
14	VA PB MODE	O	VIDEO/AUDIO system REC/PB mode select PB mode is selected with "H"	VIDEO/AUDIO block
15	UNLOAD	O	Loading motor control signal OFF LOADING UNLOADING BRAKE LOAD L H L H UNLOAD L L H H	TO loading motor
16	LOAD	O		
17	CAP ON2	—	Not used	——
18	AF REC	—	Not used	——
19	ME/$\overline{\text{MP}}$	I	ME/MP tape recognition input ME tape is selected with "H"	To CC board
20	MP HG	I	MP HG tape recognition input MPHG is selected with "L"	To CC board
21	REC PROOF	I	REC PROOF recognition input REC PROOF is selected with "L"	To CC board
22	MODE SW2	I	} Mechanical position input	To CC board
23	MODE SW1	I		
24	MODE SW0	I		
25	$\overline{\text{CC DOWN}}$	I	Cassette IN switch input Cassette IN is selected with "L"	To CC board
26	DRM ON	O	Drum motor drive control Motor Drive is selected with "H"	To Drum motor driver CXA8006M
27	T/E LED	O	LED for tape top end sensor drive control LED Flashing is selected with "H"	To CC board
28	$\overline{\text{REEL LED}}$	O	LED for reel sensor drive control LED Flashing is selected with "L"	To CC board

PIN No.	Signal Name	I/O	Function	Connection
29	POWER SAVE	O	Marker block POWER SAVE control signal	—
30	$\overline{\text{EDIT}}$	O	EDIT ON/OFF control EDIT is selected with "L"and interlocked with EDIT key.	To VIDEO block
31	SS GND	—	—	—
32	$\overline{\text{SYSTEM}}$ $\overline{\text{RESET}}$	I	Control by mode controller with RESET terminal of this microcomputer RESET is selected "L"	Mode controller and others
33	SS GND	—	—	—
34	16M OUT	O	Crystal connecting terminal for system clock oscillation (16 MHz)	X'tal (X001)
35	16M IN	I		
36	$\overline{\text{COSMO CS}}$	I	Select signal of this microcomputer from internal bus communication mode controller Selected with "L"	Mode controller
37	DATA TO SLVE	I	Serial data input terminal	Mode controller
38	DATA TO MSTR	O	Serial data output terminal	Mode controller
39	$\overline{\text{SCK}}$	I	Serial clock input terminal	Mode controller
40	PCM ACT	—	Not used	—
41	Hi8 DET	I	Hi8 with Hi8/NOR distinction input "H" when playing back	IC204 (CXA2017)
42	S IN	I	Distinction input of the S terminal connection	VIDEO block
43	$\overline{\text{MONO}}$/ST DET	I	AFM monaural/stereo recognition input Stereo is selected "H" (Only stereo correspondence model)	To AUDIO block
44	TOP SENS	I	Tape top end sensor input TOP is selected with "H"	To CC board
45	END SENS	I	END is selected with "H"	
46	T REEL FG	I	Reel sensor input Take up side	To CC board
47	S REEL FG	I	Reel sensor input Supply side	
48	BATT SENS	I	Battery input voltage sense	—
49	DEW SENS	I	DEW SENSOR input	DEW SENSOR, To CC board
50	THERMISTOR	I	THERMISTOR input (This model: fixed value)	
51	ATF ERROR	I	ATF error (ATF LOCK error) input, A/D input terminal	IC105 (CXA1204Q)⑫
52	SS GND	—	—	—
53 54	SS 4.9V		Power source supply terminal	
55	DRM PG	I	DRUM PG input, FRC (high precision timer) capture input terminal	IC502 ⑨
56	$\overline{\text{HiFi}}$/WIND	I	Not used	—
57	CLOG	I	Clog detection signal input. CLOG is selected with "H"	Q265 ©
58	COMP SYNC	I	Composite trunk (composite synchronizing signal) input. (built-in V SYNC separator)	To V IDEO block
59	SP/$\overline{\text{LP}}$ DET	I	SP/LP recognition signal input	Q262 ©
60	DRM PG	—	—	—
61	DRM FG	I	DRUM FG input terminal, FRC capture input terminal	IC004 ⑩ Sense Amplifier

PIN No.	Signal Name	I/O	Function	Connection
62	CAP FG	I	CAPSTAN FG input terminal, FRC capture input terminal	IC502⑫ Sense amplifier
63	MONO/ST	O	Input-output selecting switch control signal	VIDEO block
64	SYNC DET	I	With/Without VIDEO signal recognition signal input	To VIDEO block
65	CAP D/A	O	DA gate pulse output terminal for CAP ERROR output, Servo exclusive output terminal (DA mode)	To capstan lowpass filter
66	DRM D/A	O	DA gate pulse output terminal for DRUM ERROR output, Servo exclusive output terminal (DA mode)	To drum lowpass filter
67	CAP PWM	O	PWM output terminal for CAP ERROR output, Servo excluseive output terminal (PWM mode)	Capstan driver IC503
68	DRM RVS	O	DRUM rotating direction control signal RVS is selected with "H" FWD is selected with "L"	IC006 ③
69	CAP FG	I	External event input terminal to CAP FG input terminal exclusive counter for TAPE COUNTER drive	IC004⑫ sense amplifier
70	MIC JACK MONO/ST	I	External MIC Monaural/stereo recognition signal. Monaural is selected with "H"	To AUDIO block
71 72	SS 4.9V			
73	SS GND	—	—	—
74	—	—	Not used	—
75	CAP ON	O	Capstan driver ON control signal	IC005⑬ Capstan driver
76	CAP FWD/REV	O	Capstan rotaing direction control signal, FWD is selected with "H", RVS is selected with "L"	IC005⑳ Capstan driver
77	RP PB MODE	O	REC/PB mode select signal of RP amplifier and ATF IC	Q010 Ⓑ
78	FE ON	O	Flying erase oscillation ON/OFF signal. Oscillation is selected with "H"	To RP AMP.
79	JOG VD	O	Artificial VD output terminal input to VIDEO signal in varying speed playback	To VIDEO block
80	RF SWP	O	RF SWP output temrinal	RP block VIDEO/AUDIO block

Decoder port for the chip cell allocation list (TC4028)

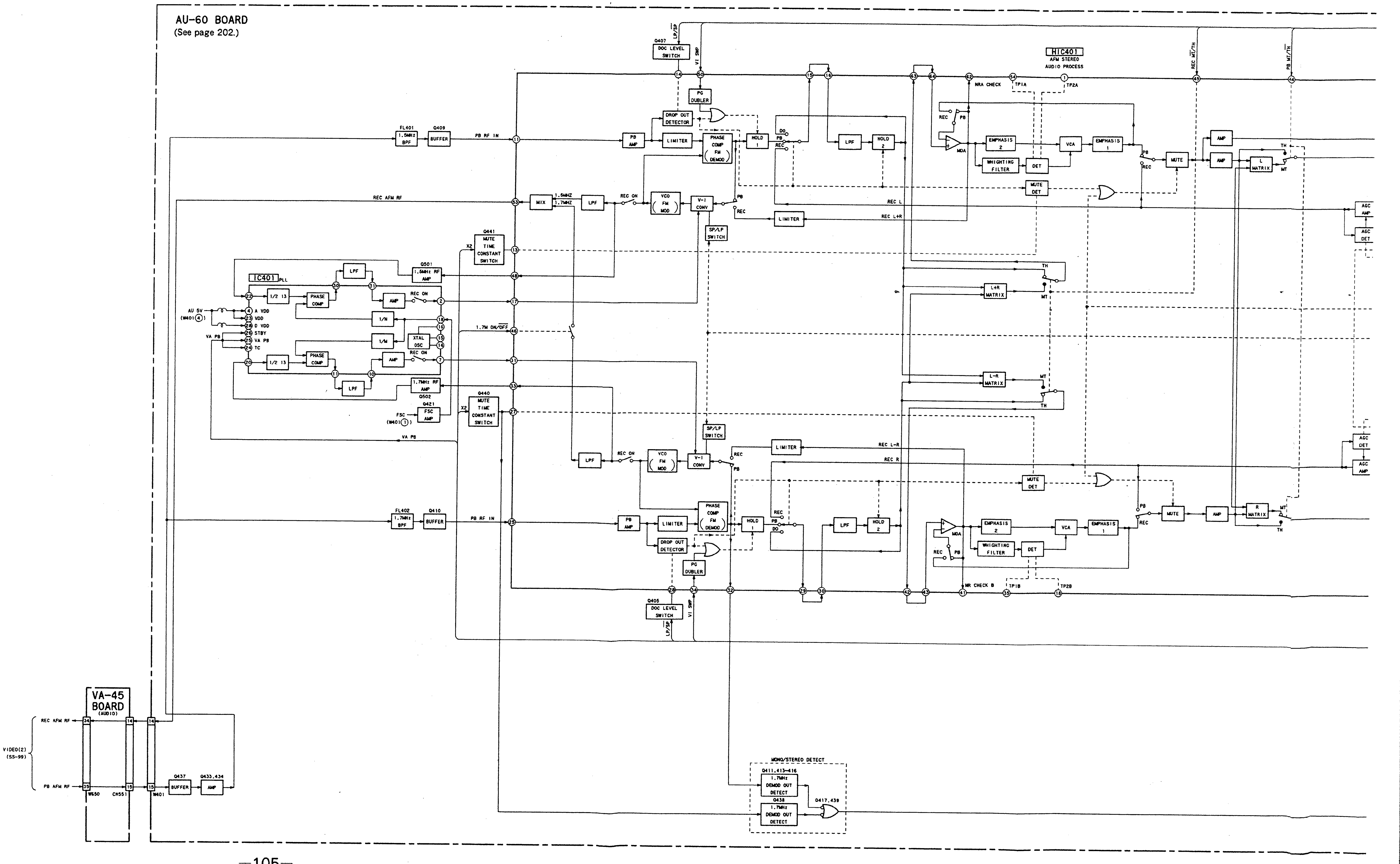
No.	Port name	Port allocation name
3	Q0	E^2-ROM CS
14	Q1	
2	Q2	VA S/P STB
15	Q3	Φ II SR CS
1	Q4	COSMO CS
6	Q5	MARKER CS
7	Q6	CG STB
4	Q7	PCM CS
9	Q8	PCM S/P STB
5	Q9	—

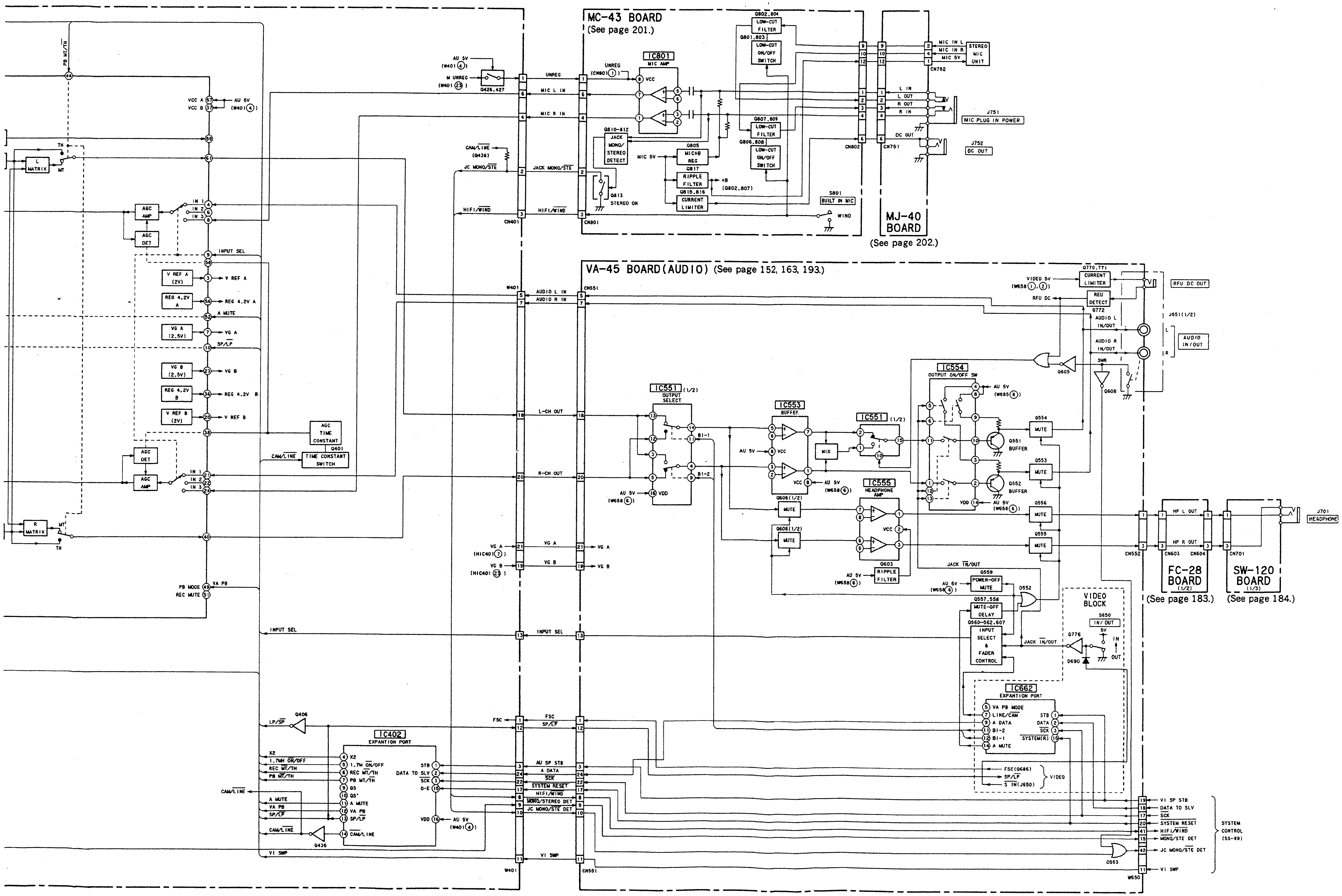
3-12. MODE CONTROL SYSTEM TERMINAL FUNCTION FD-15 BOARD IC201 (μPD75312)

Pin No.	Port name	Port allocation name	I/O	The another connection	Function•Remarks
1	S12		O	LCD	Segment signal output terminal of the liquid crystal display element (LCD)
2	S13		O	LCD	
3	S14		O	LCD	
4	S15		O	LCD	
5	S16		O	LCD	
6	S17		O	LCD	
7	S18		O	LCD	
8	S19		O	LCD	
9	S20		O	LCD	
10	S21		O	LCD	
11	S22		O	LCD	
12	S23		O	LCD	
13	S24/BP0		O	LCD	
14	S25/BP1		O	LCD	
15	S26/BP2		O	LCD	
16	S27/BP3		O	LCD	
17	S28/BP4	TITL CS	O	FD	Chip selector signal of the standard cell for titler (IC301)
18	S29/BP5	~REMO CS	O	FD	Chip selector signal of the wireless remote control reception microcomputer (IC203)
19	S30/BP6	S RAM CS	O	FD	Chip selector signal of RAM for the titler (IC302)
20	S31/BP7	~CAM CS	O	CAM	Chip selector signal of the camera microcomputer (IC501)
21	COM0			LCD	Remote control signal output terminal of the liquid crystal display element (LCD)
22	COM1			LCD	
23	COM2			LCD	
24	COM3			LCD	
25	BIAS			LCD	Output terminal for dividing resistance cut of the liquid crystal display element (LCD)
26	VLC0			LCD	Power source supply terminal of the liquid crystal display enement (LCD)
27	VLC1			LCD	
28	VLC2			LCD	
29	P40	~VTR POWER	O	FU	Turning ON/OFF signal of the VTR system DC/DC converter
30	P41	~CAM POWER	O	CAM	Turning ON/OFF signal of the CAM system DC/DC converter
31	P42	~SYSTEM RESET	O	ALL	Initializing (reset) signal of each microcomputer or IC
32	P43	~TALLY	O	VF	Tally LED flashing signal
33	VSS				Ground power source
34	P50	K OUT 0	O	FD	Output signal of the key matrix
35	P51	K OUT 1	O	FD	
36	P52	K OUT 2	O	FD	
37	P53	K OUT 3	O	FD	
38	P00/INT4	~BATT IN	I	FD	Signal for the battery or the AC adapter attaching/removing detection

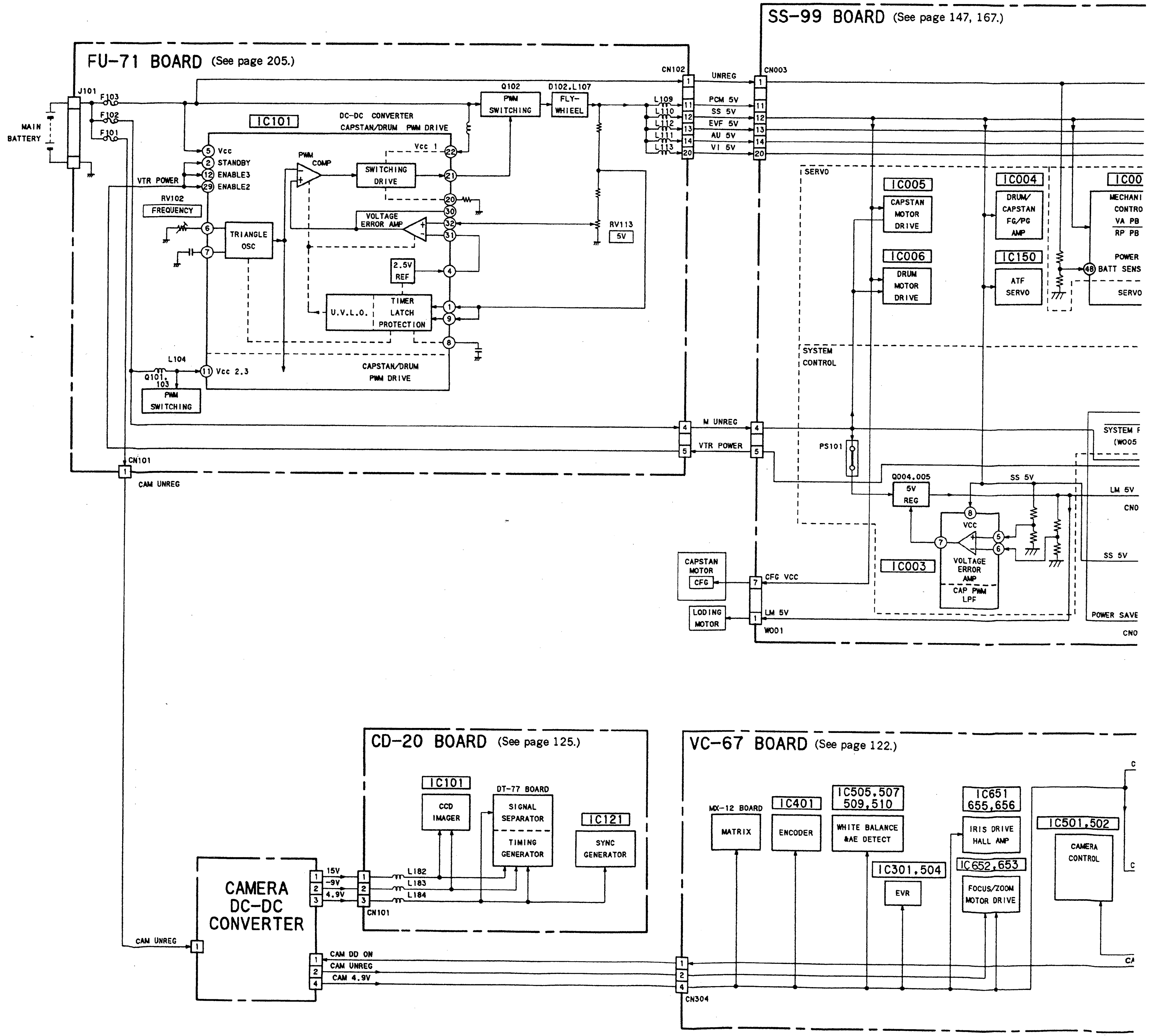
Pin No.	Port name	Port allocation name	I/O	The another connection	Function•Remarks
39	P01/~SCK	~SCK	O/I	ALL	Serial clock for serial communication (This is input only when communicating with camera microcomputer)
40	P02/S0/SB0	DATA TO SLVE	O	ALL	Data output signal for serial communication
41	P03/SI/SB1	DATA TO MSTR	I	ALL	Data input signal for serial communication
42	P10/INT0	SYSTEM SYNC	I	SS	Timing signal for serial communication
43	P11/INT1	~LI PRE END	I	FD	Pre-end detection signal of the lithium battery (Set value is 2.8V or less)
44	P12/INT2	~LINCS PWR ON	I	FD	POWER ON requiring signal of the LANC communication (Power is turned on with L at 140ms or more)
45	P13/TI0	DATA TO MODE	I	SS	Serial communication data input signal of EE-PROM
46	P20/PT00	K OUT4/DATA TO E^2	O	SS	Data output signal of the output signal +EE-PROM of the key matrix
47	P21	K OUT5/~SCK E^2	O	SS	Serial clock signal of the output signal +EE-PROM of the key matrix
48	P22/PCL	K OUT 6	O	FD	Output signal of the key matrix
49	P23/BUZ				
50	P30/LCDCL	SELECT 1	O	SS	Signal for producing chip select
51	P31/SYNC	SELECT 2	O	SS	
52	P32	SELECT 3	O	SS	
53	P33	~VTR SW	I	FD	Forced VTR mode signal (Uned at the place for business)
54	VDD				Positive voltage supplying terminal
55	XT1				Crystal vibrator connecting terminal for clock
56	XT2				
57	NC				
58	X1				Ceramic connecting terminal for the main system clock oscillation
59	X2				
60	P60/KR0	K IN 0	I	FD	Key matrix input signal
61	P61/KR1	K IN 1	I	FD	
62	P62/KR2	K IN 2	I	FD	
63	P63/KR3	K IN 3	I	FD	
64	P70/KR4	K IN 4	I	FD	
65	P71/KR5	K IN 5	I	FD	
66	P72/KR6	K IN 6	I	FD	
67	P73/KR7	K IN 7	I	FD	
68	~RESET	~RESET	I	FD	Reset signal input terminal
69	S0		O	FD	Output 1/64 of the oscillation for clock (32.768kHz/64≒512Hz)
70	S1		O	LCD	
71	S2		O	LCD	
72	S3		O	LCD	
73	S4		O	LCD	
74	S5		O	LCD	
75	S6		O	LCD	
76	S7		O	LCD	
77	S8		O	LCD	
78	S9		O	LCD	
79	S10		O	LCD	
80	S11		O	LCD	

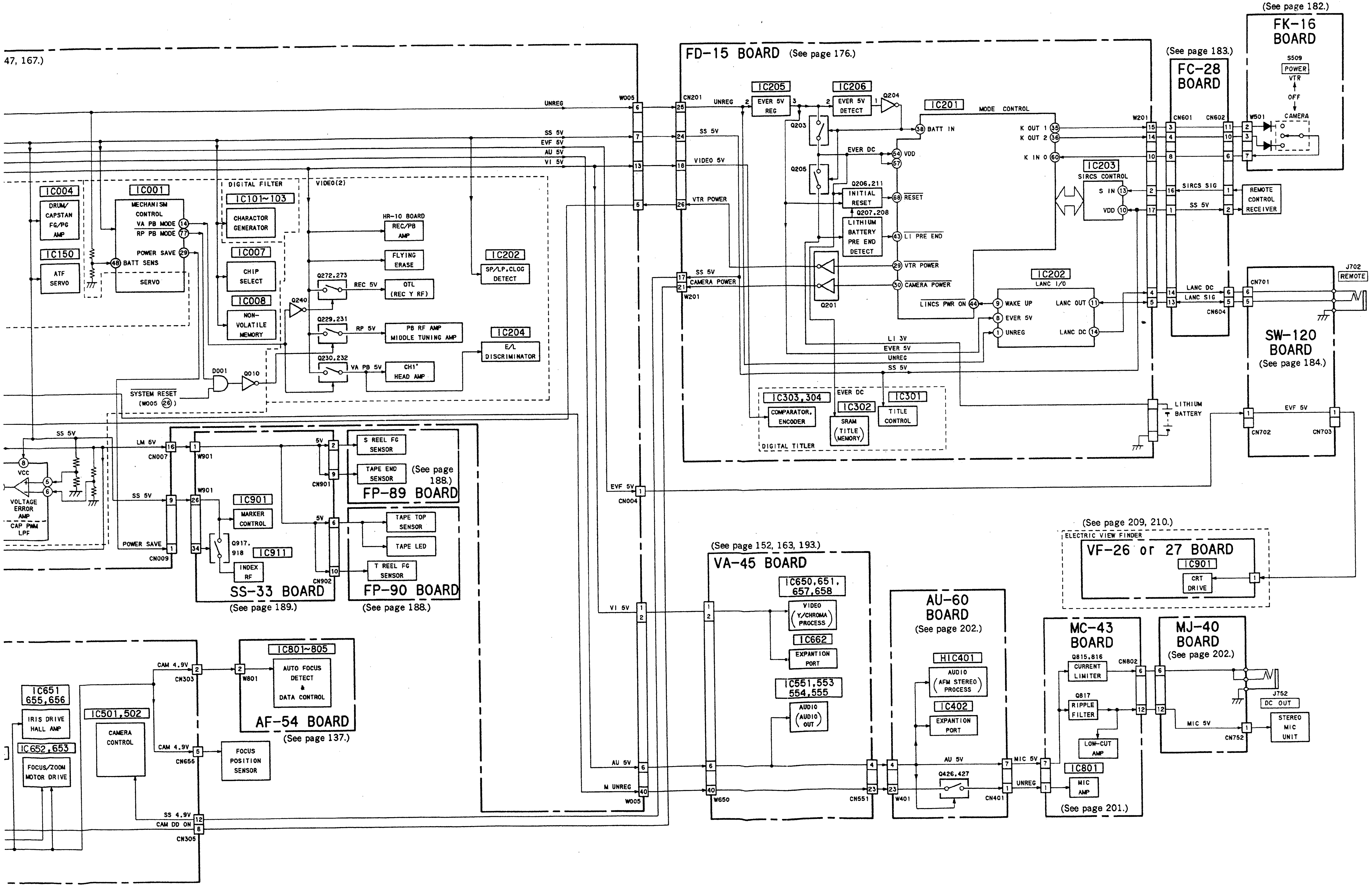
3-13. AUDIO BLOCK DIAGRAM


AU-60 BOARD
(See page 202.)
VA-45 BOARD (AUDIO)
VIDEO(2) (SS-99)
REC AFM RF
PB AFM RF
W650
CN551
W401
Q437 BUFFER
Q433,434 AMP
FL401 1.5MHz BPF
Q409 BUFFER
PB RF IN
FL402 1.7MHz BPF
Q410 BUFFER
MIX
1.5MHZ
1.7MHZ
LPF
REC ON
Q441 MUTE TIME CONSTANT SWITCH
Q440 MUTE TIME CONSTANT SWITCH
X2
IC401 PLL
1/2 13
PHASE COMP
1/N
1/M
XTAL OSC
AMP
Q501 1.5MHz RF AMP
Q502 1.7MHz RF AMP
Q421 FSC AMP
FSC (W401 ①)
AU 5V (W401 ④)
A VDD
VDD
D VDD
STBY
VA PB
TC
1.7M ON/OFF
Q407 DOC LEVEL SWITCH
Q405 DOC LEVEL SWITCH
LP/SP
VI SWP
PG DUBLER
DROP OUT DETECTOR
PB AMP
LIMITER
PHASE COMP (FM DEMOD)
HOLD 1
HOLD 2
DO
PB
REC
VCO (FM MOD)
V-I CONV
SP/LP SWITCH
HIC401 AFM STEREO AUDIO PROCESS
NRA CHECK
TP1A
TP2A
NR CHECK B
TP1B
TP2B
MOA
EMPHASIS 2
EMPHASIS 1
WHIGHTING FILTER
DET
VCA
MUTE DET
MUTE
REC L
REC L+R
REC L-R
REC R
L+R MATRIX
L-R MATRIX
L MATRIX
R MATRIX
MT
TH
REC MT/TH
PB MT/TH
AGC AMP
AGC DET
MONO/STEREO DETECT
Q411,413-416 1.7MHz DEMOD OUT DETECT
Q438 1.7MHz DEMOD OUT DETECT
Q417,439

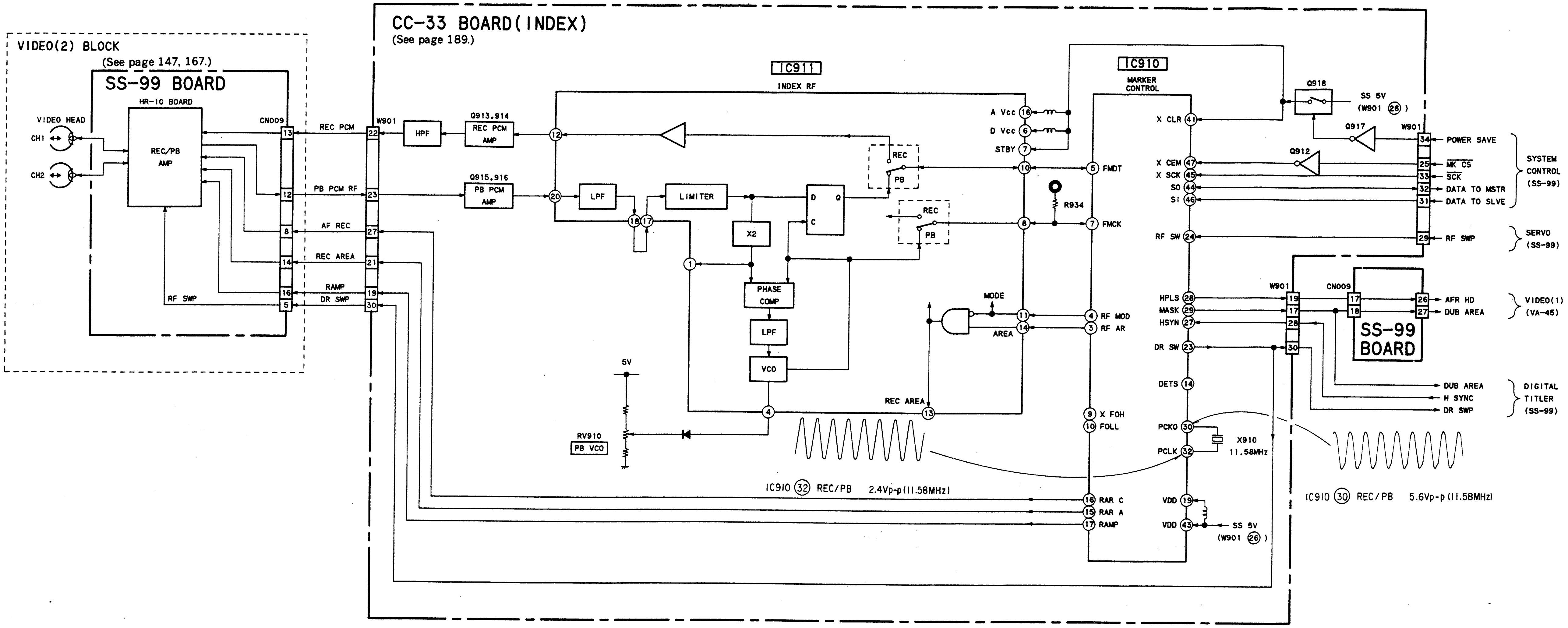

MC-43 BOARD
(See page 201.)
IC801
MIC AMP
Q802,804 LOW-CUT FILTER
Q801,803 LOW-CUT ON/OFF SWITCH
Q807,809 LOW-CUT FILTER
Q806,808 LOW-CUT ON/OFF SWITCH
Q810-812 JACK MONO/STEREO DETECT
Q805 MIC+B REG
Q817 RIPPLE FILTER
Q815,816 CURRENT LIMITER
Q813 STEREO ON
S801 BUILT IN MIC
WIND
CN801
CN802
MJ-40 BOARD
(See page 202.)
CN752
CN751
STEREO MIC UNIT
MIC IN L
MIC IN R
MIC 5V
L IN
L OUT
R OUT
R IN
DC OUT
J751 MIC PLUG IN POWER
J752 DC OUT
UNREG
MIC L IN
MIC R IN
JACK MONO/STE
HIFI/WIND
CN401
W401
AU 5V (W401④)
M UNREG (W401㉓)
Q426,427
CAM/LINE (Q436)
PB MT/TH
VCC A
VCC B
AU 5V (W401④)
L MATRIX
R MATRIX
TH
MT
AGC AMP
AGC DET
IN 1
IN 2
IN 3
INPUT SEL
V REF A (2V)
REG 4.2V A
A MUTE
VG A (2.5V)
SP/LP
VG B (2.5V)
REG 4.2V B
V REF B (2V)
AGC TIME CONSTANT
Q401 TIME CONSTANT SWITCH
CAM/LINE
PB MODE
REC MUTE
VA PB
VA-45 BOARD(AUDIO) (See page 152, 163, 193.)
CN551
AUDIO L IN
AUDIO R IN
L-CH OUT
R-CH OUT
VG A
VG B
(HIC401⑦)
(HIC401㉓)
INPUT SEL
FSC
SP/LP
AU SP STB
A DATA
SCK
SYSTEM RESET
HIFI/WIND
MONO/STEREO DET
JC MONO/STE DET
VI SWP
IC551 (1/2) OUTPUT SELECT
BI-1
BI-2
AU 5V (W658⑥)
VDD
IC553 BUFFER
MIX
IC551 (1/2)
IC554 OUTPUT ON/OFF SW
AU 5V (W658⑥)
Q551 BUFFER
Q552 BUFFER
Q554 MUTE
Q553 MUTE
Q556 MUTE
Q555 MUTE
IC555 HEADPHONE AMP
Q606(1/2) MUTE
Q603 RIPPLE FILTER
JACK IN/OUT
Q559 POWER-OFF MUTE
D552
Q557,558 MUTE-OFF DELAY
Q560-562,607 INPUT SELECT & FADER CONTROL
Q770,771 CURRENT LIMITER
VIDEO 5V (W658①,②)
RFU DC
Q772 REU DETECT
RFU DC OUT
J651(1/2)
AUDIO L IN/OUT
AUDIO R IN/OUT
AUDIO IN/OUT
SWR
Q605
Q608
VIDEO BLOCK
S650 IN/OUT
Q776
D690
IC662 EXPANTION PORT
VA PB MODE
LINE/CAM
A DATA
BI-2
BI-1
A MUTE
STB
DATA
SCK
SYSTEM(R)
FSC(Q686)
SP/LP
S IN(J650)
VIDEO
CN552
FC-28 BOARD (1/2)
(See page 183.)
CN603
CN604
HP L OUT
HP R OUT
SW-120 BOARD (1/3)
(See page 184.)
CN701
J701 HEADPHONE
W650
VI SP STB
DATA TO SLV
SCK
SYSTEM RESET
HIFI/WIND
MONO/STE DET
JC MONO/STE DET
VI SWP
SYSTEM CONTROL (SS-99)
D553
IC402 EXPANTION PORT
X2
1.7MH ON/OFF
REC MT/TH
PB MT/TH
GS
GS'
A MUTE
VA PB
SP/LP
CAM/LINE
DATA TO SLV
STB
SCK
O·E
VDD
AU 5V (W401④)
Q406
LP/SP
Q436
VI SWP
W401
CN551

3-14. POWER BLOCK DIAGRAM

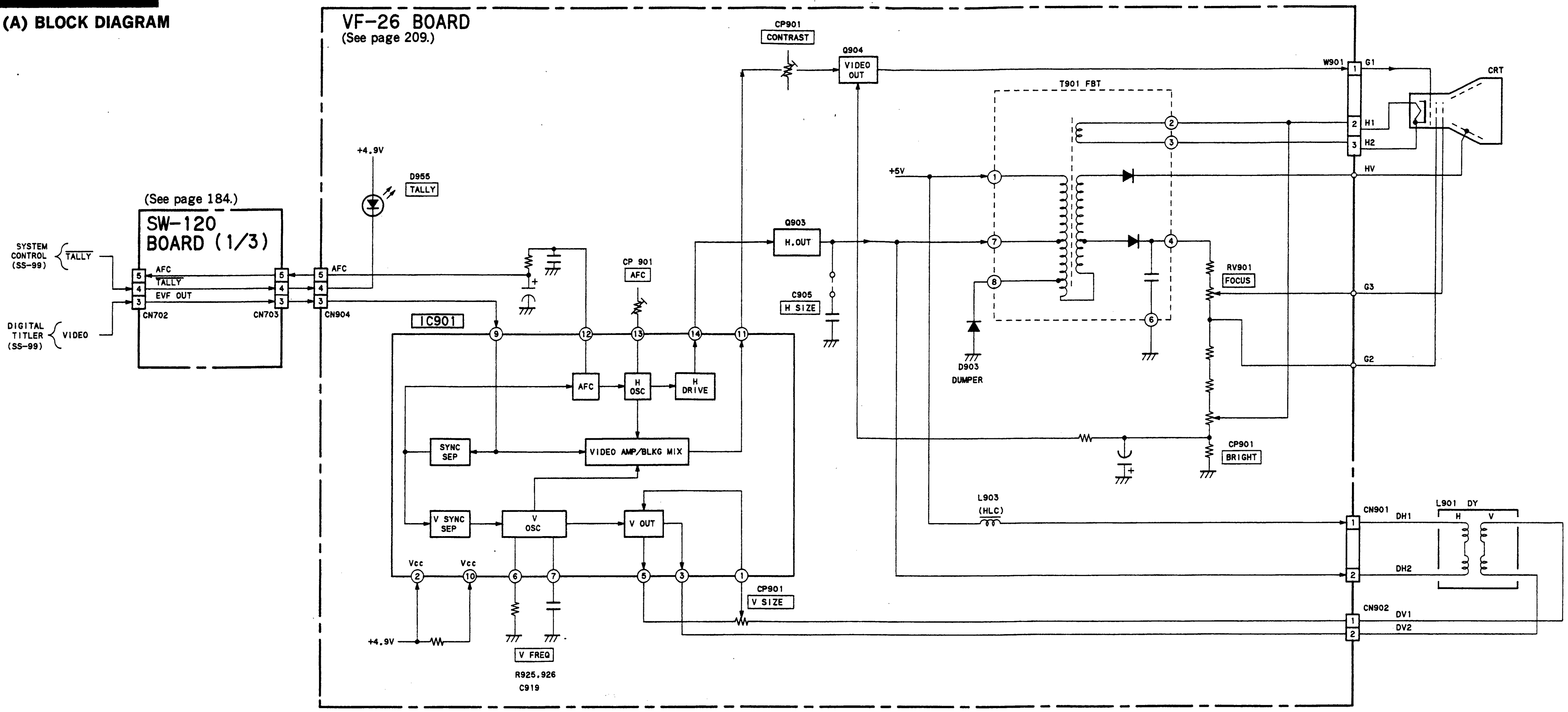

FU-71 BOARD (See page 205.)
MAIN BATTERY
J101
F103
F102
F101
IC101
DC-DC CONVERTER
CAPSTAN/DRUM PWM DRIVE
Vcc
STANDBY
ENABLE3
ENABLE2
VTR POWER
RV102
FREQUENCY
TRIANGLE OSC
PWM COMP
SWITCHING DRIVE
Vcc 1
VOLTAGE ERROR AMP
2.5V REF
U.V.L.O.
TIMER LATCH PROTECTION
RV113
5V
Q102
PWM SWITCHING
D102,L107
FLY-WHIEEL
L104
Q101, 103
PWM SWITCHING
Vcc 2.3
CAPSTAN/DRUM PWM DRIVE
CN102
L109
L110
L112
L111
L113
UNREG
PCM 5V
SS 5V
EVF 5V
AU 5V
VI 5V
M UNREG
VTR POWER
CN101
CAM UNREG
SS-99 BOARD (See page 147, 167.)
CN003
SERVO
IC005
CAPSTAN MOTOR DRIVE
IC006
DRUM MOTOR DRIVE
IC004
DRUM/CAPSTAN FG/PG AMP
IC150
ATF SERVO
IC00
MECHANI
CONTRO
VA PB
RP PB
POWER
BATT SENS
SERVO
SYSTEM CONTROL
PS101
Q004,005
5V REG
SS 5V
VCC
VOLTAGE ERROR AMP
CAP PWM LPF
IC003
SYSTEM F
(WOO5
LM 5V
CNO
SS 5V
POWER SAVE
CNO
CAPSTAN MOTOR
CFG
CFG VCC
LODING MOTOR
LM 5V
W001
CD-20 BOARD (See page 125.)
IC101
CCD IMAGER
DT-77 BOARD
SIGNAL SEPARATOR
TIMING GENERATOR
IC121
SYNC GENERATOR
CAMERA DC-DC CONVERTER
CAM UNREG
15V
-9V
4.9V
L182
L183
L184
CN101
CAM DD ON
CAM UNREG
CAM 4.9V
VC-67 BOARD (See page 122.)
MX-12 BOARD
MATRIX
IC401
ENCODER
IC505,507 509,510
WHITE BALANCE &AE DETECT
IC301,504
EVR
IC651 655,656
IRIS DRIVE HALL AMP
IC652,653
FOCUS/ZOOM MOTOR DRIVE
IC501,502
CAMERA CONTROL
CN304


47, 167.)
UNREG
SS 5V
EVF 5V
AU 5V
VI 5V
W005
IC004
DRUM/CAPSTAN FG/PG AMP
IC150
ATF SERVO
IC001
MECHANISM CONTROL
VA PB MODE
RP PB MODE
POWER SAVE
BATT SENS
SERVO
DIGITAL FILTER
IC101~103
CHARACTOR GENERATOR
IC007
CHIP SELECT
IC008
NON-VOLATILE MEMORY
VIDEO(2)
HR-10 BOARD
REC/PB AMP
FLYING ERASE
Q272,273
REC 5V
OTL (REC Y RF)
Q240
Q229,231
RP 5V
PB RF AMP MIDDLE TUNING AMP
Q230,232
VA PB 5V
CH1' HEAD AMP
IC202
SP/LP,CLOG DETECT
IC204
E/L DISCRIMINATOR
D001
Q010
SYSTEM RESET (W005 ㉖)
SS 5V
VCC
VOLTAGE ERROR AMP
CAP PWM LPF
LM 6V
CN007
W901
SS 5V
POWER SAVE
CN009
IC901
MARKER CONTROL
Q917, 918
IC911
INDEX RF
SS-33 BOARD
(See page 189.)
5V
S REEL FG SENSOR
TAPE END SENSOR
(See page 188.)
CN901
FP-89 BOARD
TAPE TOP SENSOR
TAPE LED
T REEL FG SENSOR
CN902
FP-90 BOARD
(See page 188.)
IC651 655,656
IRIS DRIVE HALL AMP
IC652,653
FOCUS/ZOOM MOTOR DRIVE
IC501,502
CAMERA CONTROL
CAM 4.9V
CN303
CN655
SS 4.9V
CAM DD ON
CN305
IC801~805
AUTO FOCUS DETECT & DATA CONTROL
W801
AF-54 BOARD
(See page 137.)
FOCUS POSITION SENSOR
EVF 5V
CN004
VI 5V
AU 5V
M UNREG
FD-15 BOARD (See page 176.)
CN201
UNREG
IC205
EVER 5V REG
IC206
EVER 5V DETECT
Q204
Q203
Q205
EVER DC
IC201
MODE CONTROL
BATT IN
VDD
RESET
LI PRE END
VTR POWER
CAMERA POWER
LINCS PWR ON
Q206,211
INITIAL RESET
Q207,208
LITHIUM BATTERY PRE END DETECT
Q201
SS 5V
VIDEO 5V
VTR POWER
CAMERA POWER
W201
K OUT 1
K OUT 2
K IN 0
IC203
SIRCS CONTROL
S IN
VDD
IC202
LANC I/O
WAKE UP
EVER 5V
UNREG
LANC OUT
LANC DC
LI 3V
EVER 5V
UNREG
SS 5V
IC303,304
COMPARATOR, ENCODER
IC302
SRAM (TITLE MEMORY)
IC301
TITLE CONTROL
DIGITAL TITLER
LITHIUM BATTERY
(See page 183.)
FC-28 BOARD
CN601
CN602
SIRCS SIG
SS 5V
LANC DC
LANC SIG
CN604
(See page 182.)
FK-16 BOARD
S509
POWER
VTR
OFF
CAMERA
W501
REMOTE CONTROL RECEIVER
J702
REMOTE
CN701
SW-120 BOARD
(See page 184.)
EVF 5V
CN702
CN703
(See page 209, 210.)
ELECTRIC VIEW FINDER
VF-26 or 27 BOARD
IC901
CRT DRIVE
(See page 152, 163, 193.)
VA-45 BOARD
IC650,651, 657,658
VIDEO (Y/CHROMA PROCESS)
IC662
EXPANTION PORT
IC551,553 554,555
AUDIO (AUDIO OUT)
W650
CN551
AU-60 BOARD
(See page 202.)
HIC401
AUDIO (AFM STEREO PROCESS)
IC402
EXPANTION PORT
AU 5V
Q426,427
W401
CN401
MIC 5V
UNREG
MC-43 BOARD
Q815,816
CURRENT LIMITER
Q817
RIPPLE FILTER
LOW-CUT AMP
IC801
MIC AMP
CN802
(See page 201.)
MJ-40 BOARD
(See page 202.)
MIC 5V
J752
DC OUT
STEREO MIC UNIT
CN752

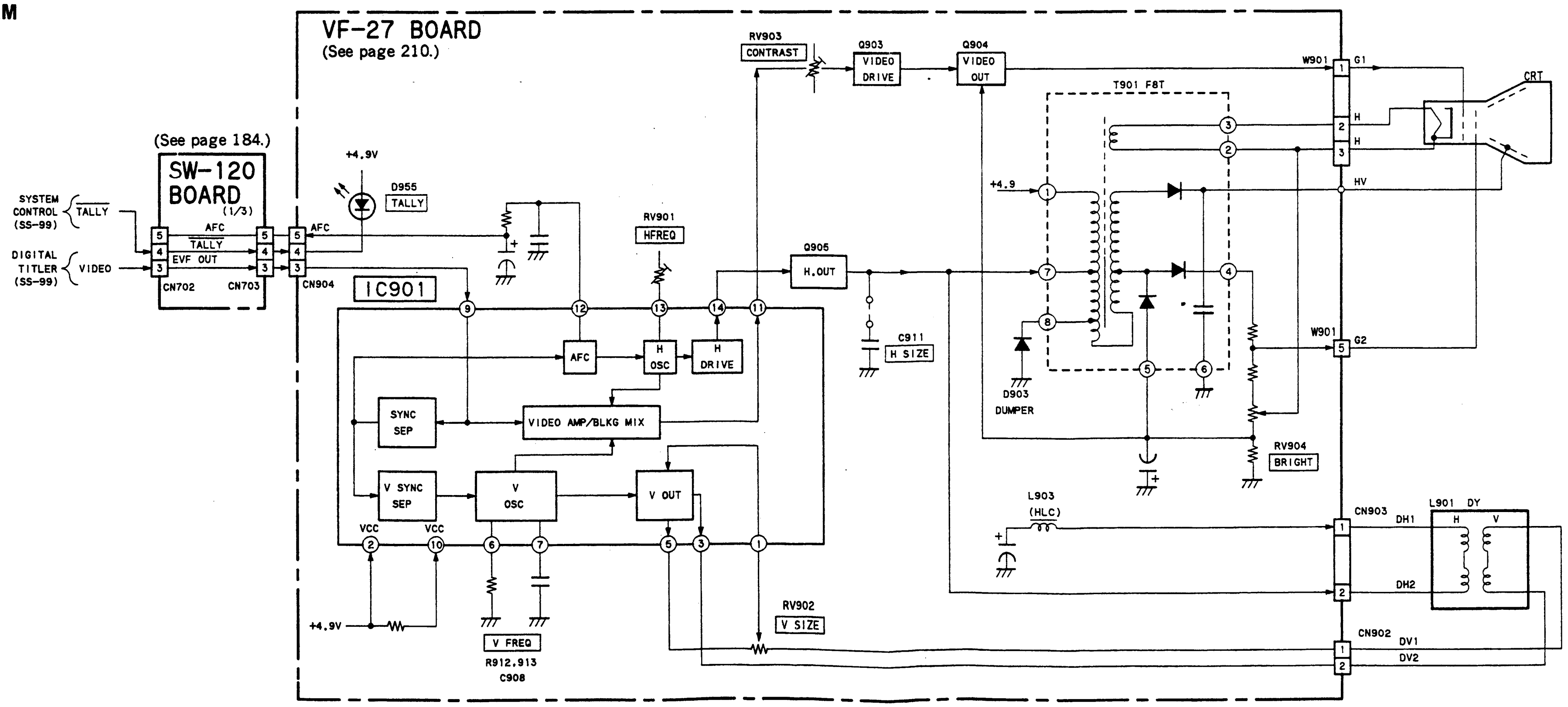
3-15. INDEX BLOCK DIAGRAM


VIDEO(2) BLOCK
(See page 147, 167.)
SS-99 BOARD
HR-10 BOARD
VIDEO HEAD
CH1
CH2
REC/PB AMP
CN009
RF SWP
REC PCM
PB PCM RF
AF REC
REC AREA
RAMP
DR SWP
CC-33 BOARD(INDEX)
(See page 189.)
W901
HPF
Q913,914
REC PCM AMP
Q915,916
PB PCM AMP
IC911
INDEX RF
LPF
LIMITER
X2
D
Q
C
PHASE COMP
LPF
VCO
REC
PB
REC
PB
A Vcc
D Vcc
STBY
MODE
AREA
REC AREA
5V
RV910
PB VCO
IC910 ㉜ REC/PB 2.4Vp-p(11.58MHz)
R934
IC910
MARKER CONTROL
FMDT
FMCK
RF MOD
RF AR
X FOH
FOLL
RAR C
RAR A
RAMP
X CLR
X CEM
X SCK
SO
SI
RF SW
HPLS
MASK
HSYN
DR SW
DETS
PCKO
PCLK
X910
11.58MHz
VDD
VDD
SS 5V
(W901 ㉖)
Q918
SS 5V
(W901 ㉖)
Q917
Q912
W901
POWER SAVE
MK CS
SCK
DATA TO MSTR
DATA TO SLVE
SYSTEM CONTROL (SS-99)
RF SWP
SERVO (SS-99)
W901
CN009
SS-99 BOARD
AFR HD
DUB AREA
VIDEO(1) (VA-45)
DUB AREA
H SYNC
DR SWP
DIGITAL TITLER (SS-99)
IC910 ㉚ REC/PB 5.6Vp-p(11.58MHz)

3-16. VIEWFINDER (A) BLOCK DIAGRAM

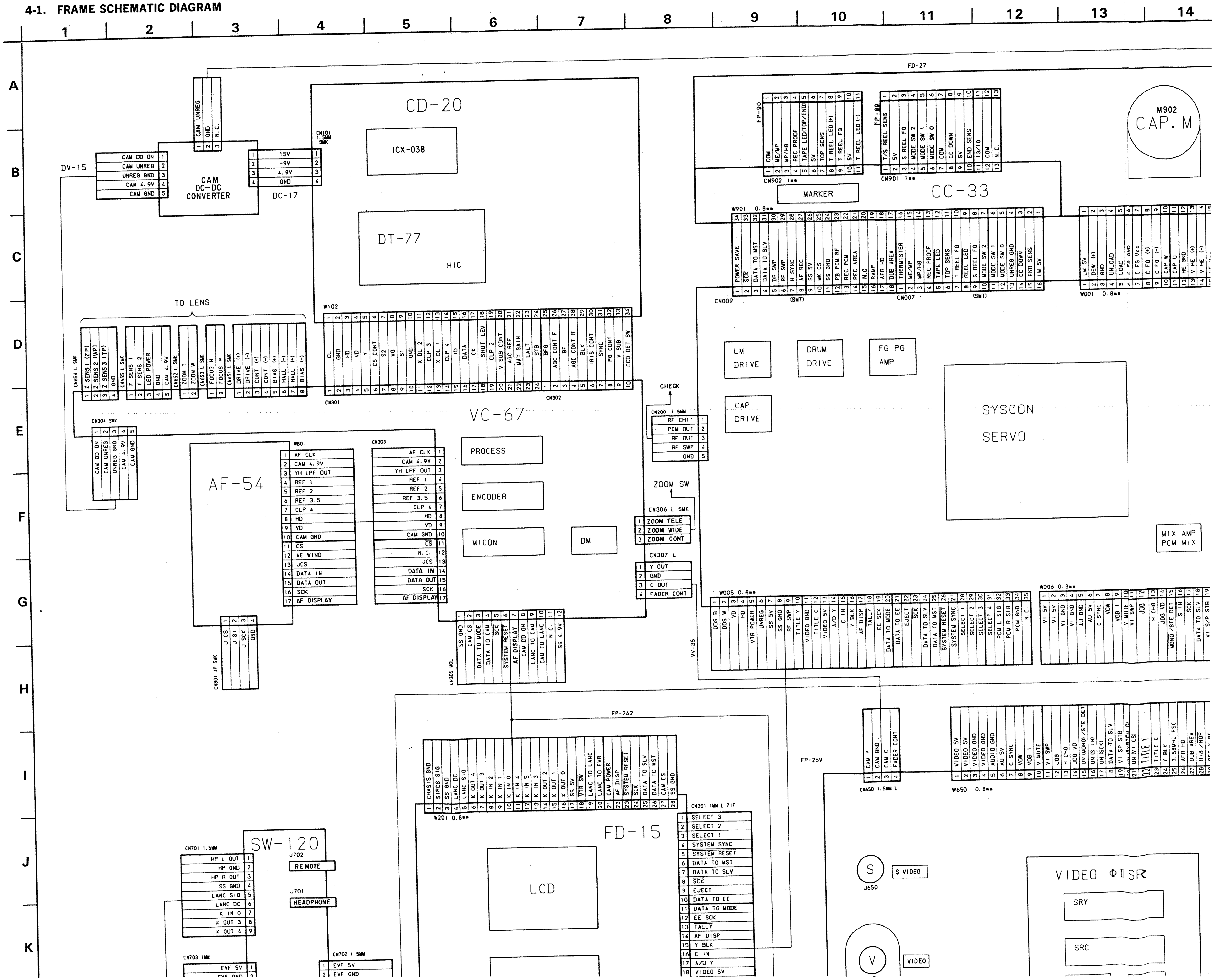

VF-26 BOARD
(See page 209.)
(See page 184.)
SW-120 BOARD (1/3)
SYSTEM CONTROL (SS-99)
TALLY
DIGITAL TITLER (SS-99)
VIDEO
AFC
TALLY
EVF OUT
CN702
CN703
CN904
+4.9V
D955
TALLY
IC901
CP 901
AFC
CP901
CONTRAST
Q904
VIDEO OUT
Q903
H.OUT
C905
H SIZE
T901 FBT
+5V
D903
DUMPER
RV901
FOCUS
CP901
BRIGHT
L903
(HLC)
W901
G1
H1
H2
HV
G3
G2
CRT
CN901
DH1
DH2
L901 DY
H
V
CN902
DV1
DV2
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
Vcc
Vcc
CP901
V SIZE
+4.9V
V FREQ
R925,926
C919

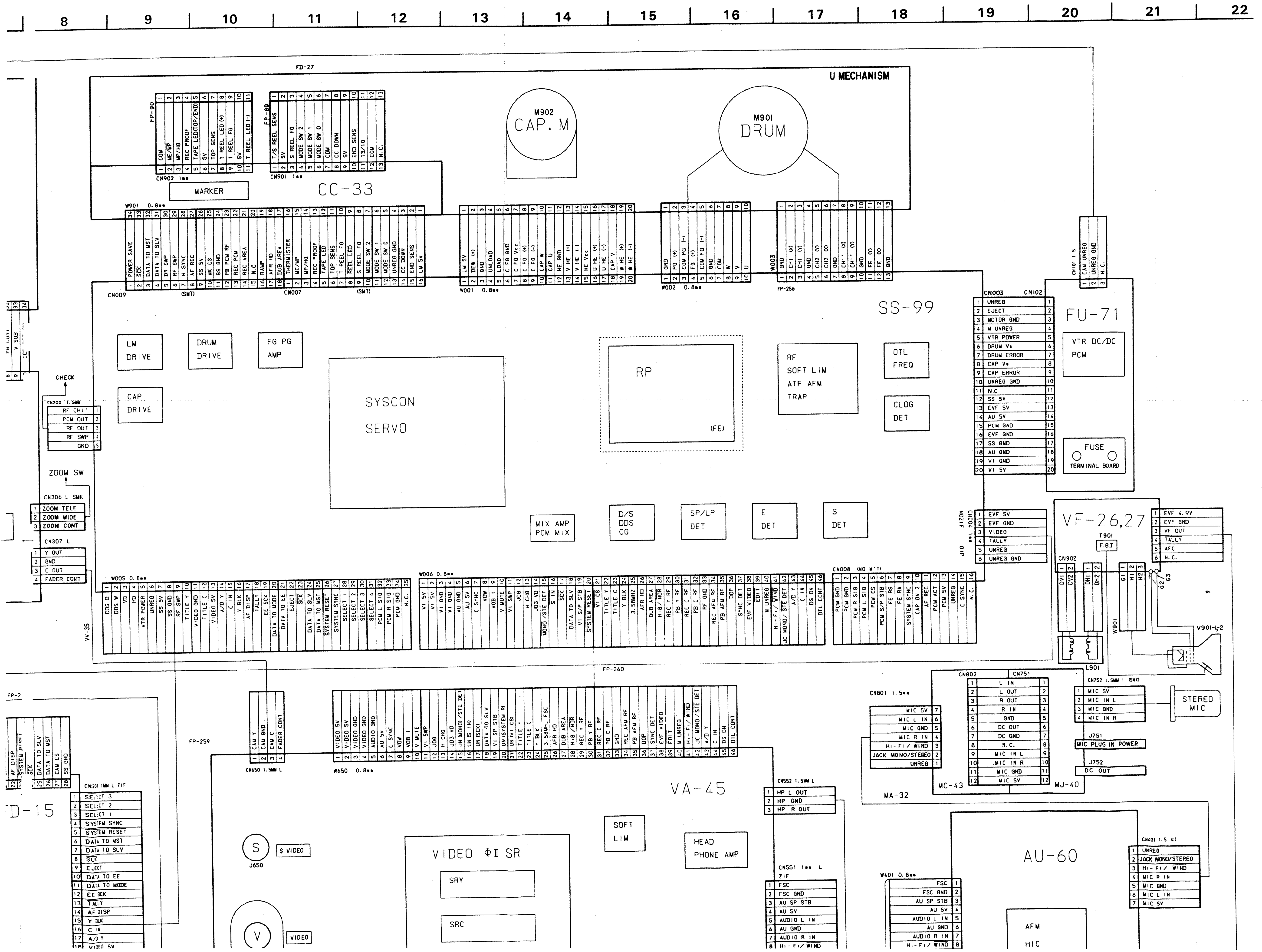
3-17. VIEWFINDER (B) BLOCK DIAGRAM


VF-27 BOARD
(See page 210.)
(See page 184.)
SW-120 BOARD (1/3)
SYSTEM CONTROL (SS-99)
TALLY
DIGITAL TITLER (SS-99)
VIDEO
AFC
TALLY
EVF OUT
CN702
CN703
CN904
+4.9V
D955
TALLY
IC901
RV901
HFREQ
RV903
CONTRAST
Q903
VIDEO DRIVE
Q904
VIDEO OUT
Q905
H.OUT
C911
H SIZE
T901 FBT
+4.9
D903
DUMPER
RV904
BRIGHT
L903
(HLC)
W901
G1
H
H
HV
W901
G2
CRT
CN903
DH1
DH2
L901 DY
H
V
CN902
DV1
DV2
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
VCC
VCC
RV902
V SIZE
+4.9V
V FREQ
R912,913
C908

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
DV-15
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
CAM DC-DC CONVERTER
CAM UNREG
GND
N.C.
15V
-9V
4.9V
GND
DC-17
CN101 1.5MM SMK
CD-20
ICX-038
DT-77
HIC
TO LENS
W102
FD-27
FP-90
COM
WE/WP
WP/HB
REC PROOF
TAPE LED(TOP/END)
5V
TOP SENS
T REEL LED (+)
T REEL FG
5V
T REEL LED (-)
CN902
FP-89
T/S REEL SENS
5V
S REEL FG
MODE SW 2
MODE SW 1
MODE SW 0
COM
CC DOWN
5V
END SENS
13/10
COM
N.C.
CN901
M902
CAP. M
MARKER
CC-33
W901 0.8mm
POWER SAVE
SCK
DATA TO MST
DATA TO SLV
DR SWP
RF SWP
H SYNC
AF REC
SS 5V
MK CS
SS GND
PB PCM RF
REC PCM
REC AREA
N.C
RAMP
AFR HD
DUB AREA
THERMISTER
WE/WP
WP/HB
REC PROOF
TAPE LED
TOP SENS
T REEL FG
T REEL LED
S REEL FG
MODE SW 2
MODE SW 1
MODE SW 0
UNREG GND
CC DOWN
END SENS
LM 5V
CN009
(SMT)
CN007
(SMT)
LM 5V
DEW (+)
GND
UNLOAD
LOAD
C FG GND
C FG Vcc
C FG (+)
C FG (-)
CAP W
CAP U
HE GND
V HE (+)
V HE (-)
W001 0.8mm
CN654 L SMK
Z SENS 1 (ZP)
Z SENS 2 (WP)
Z SENS 3 (TP)
GND
CN655 L SMK
F SENS 1
F SENS 2
LED POWER
GND
CAM 4.9V
CN652 L SMK
ZOOM T
ZOOM W
CN653 L SMK
FOCUS N
FOCUS M
CN651 L SMK
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL
HALL (+)
BIAS (-)
CL
GND
HD
VD
Y
CS CONT
S2
VO
S1
GND
X DL 2
CLP 3
X DL 1
CLP 4
ID
DATA
CK
SHUT LEV
CLP 2
V SUB CONT
AGC REF
MAX GAIN
LALT
STB
BFG
AGC CONT F
BF
AGC CONT R
BLK
IRIS CONT
SYNC
PB CONT
V SUB
CCD DET SW
CN301
CN302
CHECK
CN200 1.5MM
RF CH1
PCM OUT
RF OUT
RF SWP
GND
LM DRIVE
DRUM DRIVE
FG PG AMP
CAP DRIVE
SYSCON
SERVO
CN304 SMK
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
VC-67
W80
AF CLK
CAM 4.9V
YH LPF OUT
REF 1
REF 2
REF 3.5
CLP 4
HD
VD
CAM GND
CS
AE WIND
JCS
DATA IN
DATA OUT
SCK
AF DISPLAY
CN303
AF CLK
CAM 4.9V
YH LPF OUT
REF 1
REF 2
REF 3.5
CLP 4
HD
VD
CAM GND
CS
N.C.
JCS
DATA IN
DATA OUT
SCK
AF DISPLAY
AF-54
PROCESS
ENCODER
MICON
DM
ZOOM SW
CN306 L SMK
ZOOM TELE
ZOOM WIDE
ZOOM CONT
CN307 L
Y OUT
GND
C OUT
FADER CONT
MIX AMP
PCM MIX
W005 0.8mm
DDS B
DDS W
VD
HD
VTR POWER
UNREG
SS 5V
SS GND
RF SWP
TITLE Y
VIDEO GND
TITLE C
VIDEO 5V
A/D Y
C IN
Y BLK
AF DISP
TALLY
EE SCK
DATA TO MODE
EJECT
SCK
DATA TO SLV
DATA TO MST
SYSTEM RESET
SYSTEM SYNC
SELECT 1
SELECT 2
SELECT 4
PCM L SIG
PCM R SIG
PCM GND
N.C.
VV-35
W006 0.8mm
VI 5V
VI 5V
VI GND
VI GND
AU GND
AU 5V
C SYNC
VDW
VDB 1
V MUTE
VI SWP
JOG
H CHG
JOG VD
MONO/STE DET
S IN
SCK
DATA TO SLV
VI S/P STB
J CS
J SI
J SCK
GND
CN801 4P SMK
SS GND
CAM CS
DATA TO MODE
DATA TO CAM
SCK
SYSTEM RESET
AF DISPLAY
CAM DD ON
LANC TO CAM
CAM TO LANC
N.C.
SS 4.9V
CN305 MOL
FP-262
FP-259
CHASIS GND
SIRCS SIG
SS GND
LANC DC
LANC SIG
K OUT 4
K OUT 3
K IN 2
K IN 1
K IN 0
K IN 4
K IN 5
K IN 3
K OUT 2
K OUT 1
K OUT 0
SS 5V
VTR 5V
LANC TO LANC
LANC TO EVR
CAM POWER
AF DISP
SYSTEM RESET
SCK
DATA TO SLV
DATA TO MST
CAM CS
SS GND
W201 0.8mm
CN201 1MM L ZIF
SELECT 3
SELECT 2
SELECT 1
SYSTEM SYNC
SYSTEM RESET
DATA TO MST
DATA TO SLV
SCK
EJECT
DATA TO EE
DATA TO MODE
EE SCK
TALLY
AF DISP
Y BLK
C IN
A/D Y
VIDEO 5V
FD-15
LCD
CAM Y
CAM GND
CAM C
FADER CONT
CN650 1.5MM L
VIDEO 5V
VIDEO 5V
VIDEO GND
VIDEO GND
AUDIO GND
AU 5V
C SYNC
VDW
VDB 1
V MUTE
VI SWP
JOG
H CHG
JOG VD
UN (MONO)/STE DET
UN (S IN)
UN (SCK)
DATA TO SLV
VI SP STB
TITLE Y
TITLE C
Y BLK
3.58MHz FSC
AFR HD
DUB AREA
Hi8/NOR
W650 0.8mm
S
S VIDEO
J650
V
VIDEO
VIDEO ΦISR
SRY
SRC
SW-120
CN701 1.5MM
HP L OUT
HP GND
HP R OUT
SS GND
LANC SIG
LANC DC
K IN 0
K OUT 3
K OUT 4
J702
REMOTE
J701
HEADPHONE
CN703 1MM
EVF 5V
EVF GND
CN702 1.5MM
EVF 5V
EVF GND


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
FD-27
U MECHANISM
M902
CAP. M
M901
DRUM
CC-33
FP-90
FP-89
CN902
CN901
MARKER
W901 0.8mm
CN009
CN007
W001 0.8mm
W002 0.8mm
W003
FP-256
CN003
CN102
CN101 1.5
FU-71
VTR DC/DC
PCM
FUSE
TERMINAL BOARD
SS-99
LM DRIVE
DRUM DRIVE
FG PG AMP
CAP DRIVE
SYSCON
SERVO
RP
(FE)
RF
SOFT LIM
ATF AFM
TRAP
OTL FREQ
CLOG DET
MIX AMP
PCM MIX
D/S
DDS
CG
SP/LP DET
E DET
S DET
CHECK
CN200 1.5MM
ZOOM SW
CN306 L SMK
CN307 L
CN004 1mm DIP
ZIF
VF-26,27
T901
F.B.T
CN902
W901
L901
V901-1,-2
W005 0.8mm
W006 0.8mm
CN008
VV-35
FP-260
FP-2
FP-259
D-15
CN201 1MM L ZIF
CN650 1.5MM L
W650 0.8mm
VA-45
S
J650
S VIDEO
V
VIDEO
VIDEO ΦII SR
SRY
SRC
SOFT LIM
HEAD
PHONE AMP
CN552 1.5MM L
CN551 1mm L ZIF
CN801 1.5mm
CN802
CN751
MA-32
MC-43
MJ-40
CN752 1.5MM L (SMD)
STEREO MIC
J751
MIC PLUG IN POWER
J752
DC OUT
W401 0.8mm
AU-60
AFM HIC
CN401 1.5 (L)

4-2. PRINTED WIRING BOARDS

THIS NOTE IS COMMON F
AND SCHEMATIC DIAGRAM
(In addition to this, the nec

- **For printed wiring boards.**
- ● : Through hole.
- ░ : Pattern from the side which
- ▓ : Pattern of the rear side.*
- Circled numbers refer to wavefo

- **For schematic diagram.**
- Caution when replacing chip part
New parts must be attached after
Be careful not to heat the mir
because it is damaged by the heat
- All resistors are in ohms, 1/10W
kΩ: 1000Ω, MΩ: 1000kΩ.

- All capacitors are in μF unless ot
50V or less are not indicated ex
tantalums.
- All variable and adjustable resis
unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair.*
- ━━ : B + Line*
- Circled numbers refer to wavefor
- ⇨ : IN/OUT direction of B (+

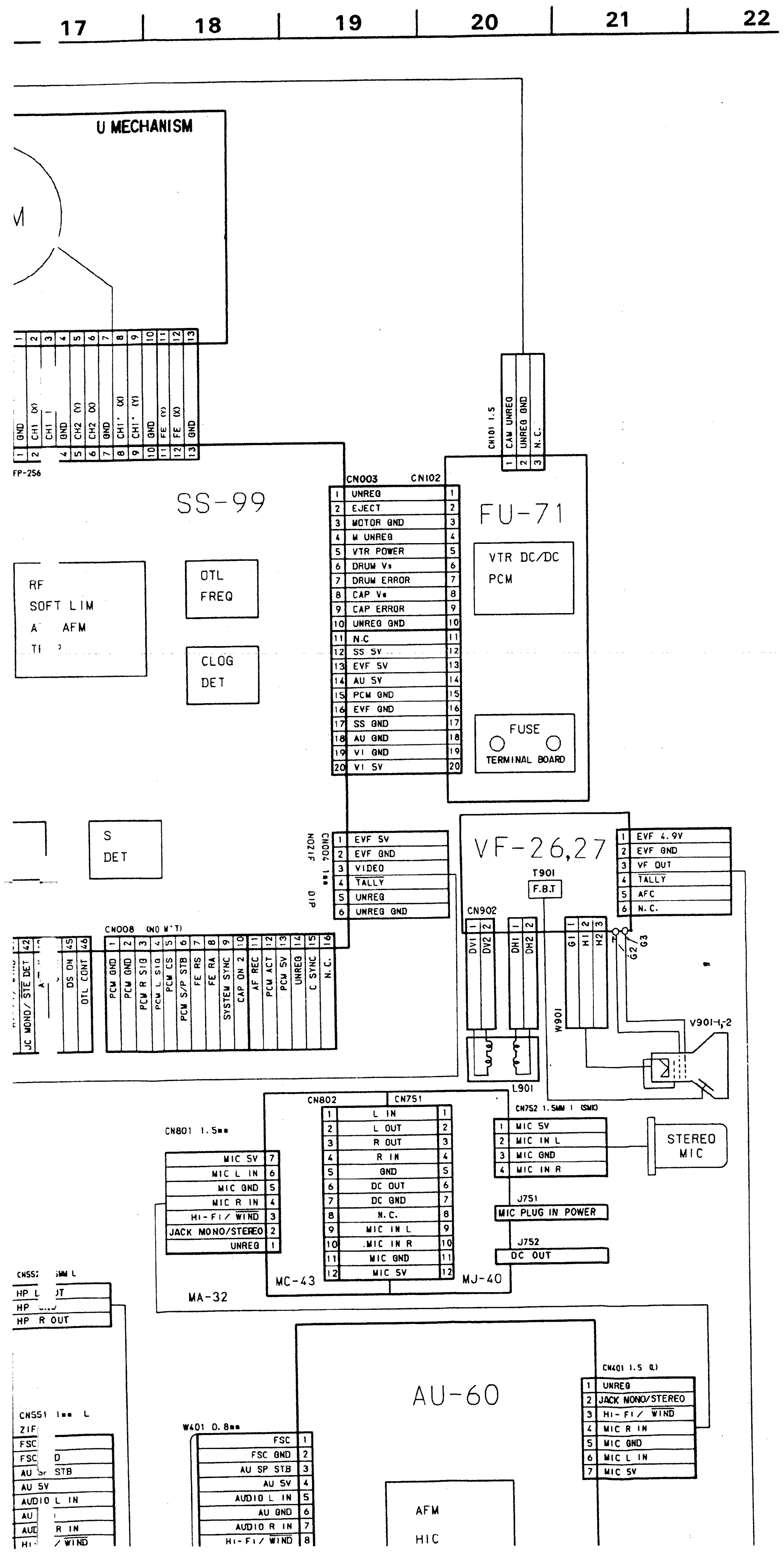
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Note: Les co une m pour l Ne les pièce fié.

When indicating parts by refer ence number, please include the board name.

* Indicated by the color red.

[SEMICONDUCTOR LOCATI

In this service manual, the m semiconductors (IC, transistor, dio shown below. This enables to find easily when servicing


17
18
19
20
21
22
U MECHANISM
SS-99
FU-71
VTR DC/DC
PCM
FUSE
TERMINAL BOARD
CN003
CN102
UNREG
EJECT
MOTOR GND
M UNREG
VTR POWER
DRUM Vs
DRUM ERROR
CAP Vs
CAP ERROR
UNREG GND
N.C
SS 5V
EVF 5V
AU 5V
PCM GND
EVF GND
SS GND
AU GND
VI GND
VI 5V
RF
SOFT LIM
OTL
FREQ
CLOG
DET
S
DET
CN008
VF-26,27
T901
F.B.T
CN902
W901
L901
V901-1,2
EVF 4.9V
EVF GND
VF OUT
TALLY
AFC
N.C.
CN004
VIDEO
UNREG
UNREG GND
CN802
CN751
CN801
CN752
STEREO
MIC
MIC 5V
MIC L IN
MIC GND
MIC R IN
HI-FI/WIND
JACK MONO/STEREO
L IN
L OUT
R OUT
R IN
GND
DC OUT
DC GND
N.C.
J751
MIC PLUG IN POWER
J752
DC OUT
MA-32
MC-43
MJ-40
AU-60
CN401
W401
FSC
FSC GND
AU SP STB
AU 5V
AUDIO L IN
AU GND
AUDIO R IN
AFM
HIC

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **For printed wiring boards.**
- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.*
- Circled numbers refer to waveforms.

- **For schematic diagram.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W or 1/16W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.

- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair.*
- ▬ : B + Line*
- Circled numbers refer to waveforms.*
- ⇨ : IN/OUT direction of B (+, –) line.*

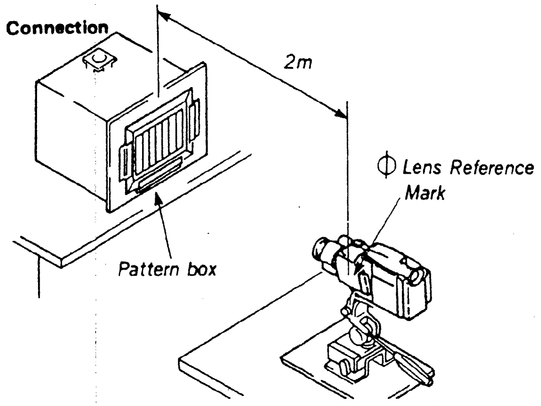
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

* Indicated by the color red.

- **For voltage and waveforms. (CAM REC mode)**
- Voltage and waveform measuring conditions:*
  (1) Sample object: Pattern box color bars.*
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).*

1. Connection


2m
Lens Reference Mark
Pattern box

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

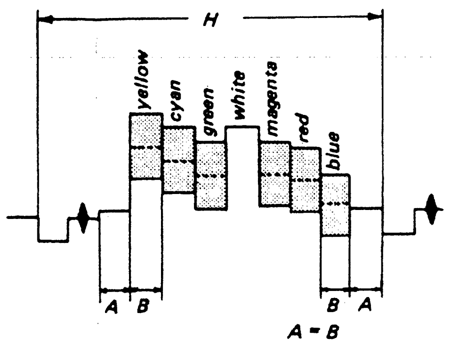

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Video output waveform.

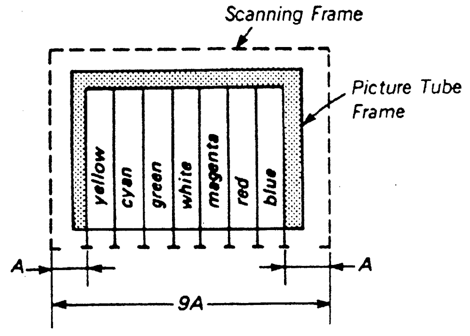

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen

- **For voltage and waveforms. (REC/PB mode)**
- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

Precautions for replacement of CCD imager block.

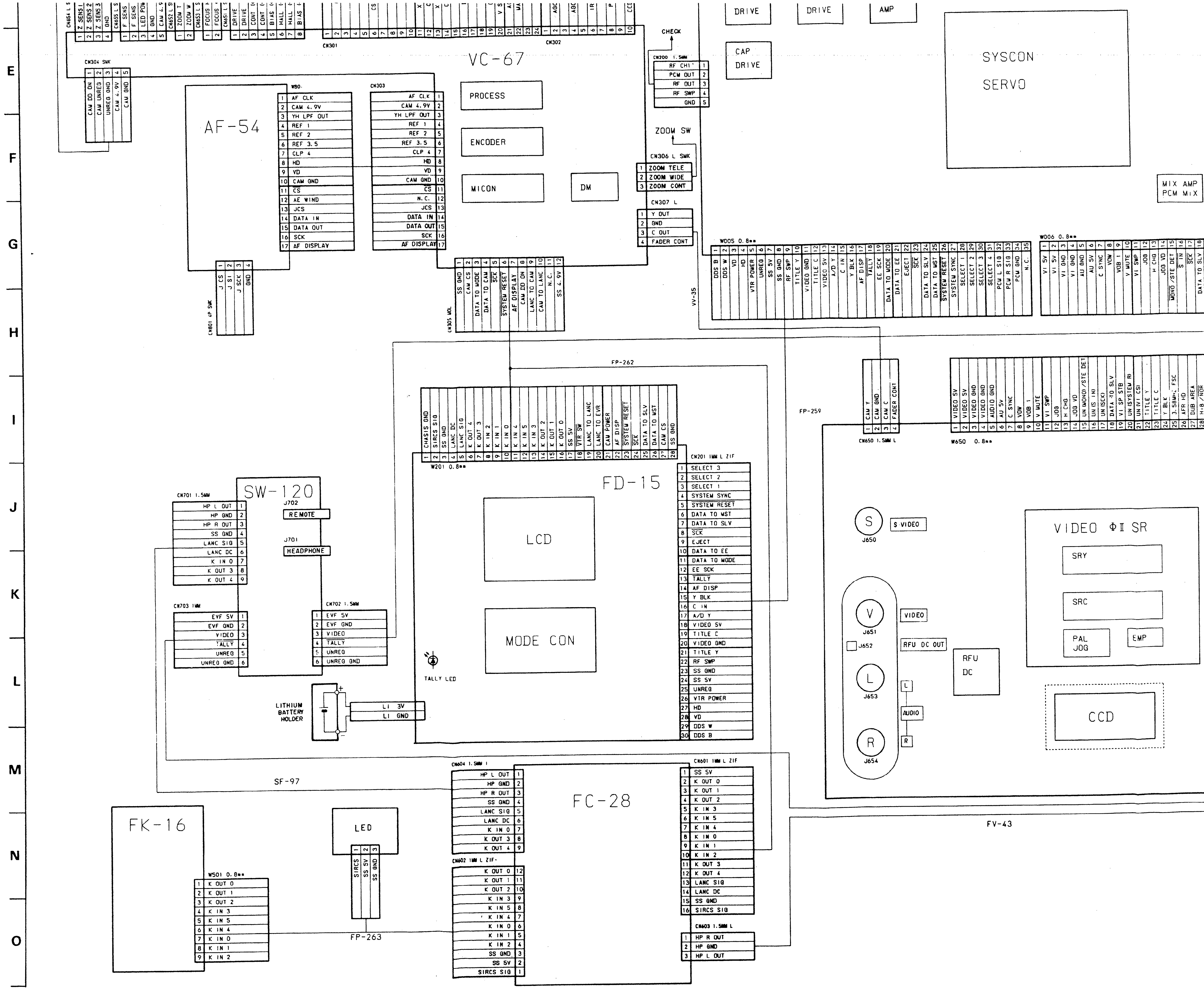
- With a pair of IC101 (CCD imager) on the CD-20 complete board and IC001 (corrector ROM) on the DT-77 complete board, it is used a repair part of the CCD imager block.
  Since corrector ROM IC is manufactured to match the CCD imager, replacement of a single unit of the CCD imager corrector ROM cannot be allowed.
- When both a CCD imager and the corrector ROM, replace both the CCD imager and the corrector ROM, when a corrector ROM is not mounted on the service set, install a corrector ROM which is supplied anew.
- IC101 (CCD imager) is not mounted on the CD-20 complete board to be supplied as a repair part, and IC001 (corrector ROM) is not mounted on the DT-77 complete board to be supplied as a repair part. When the respective boards are replaced, remove the respective ICs from the old boards and install them to the new once respectively.
- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity.
  For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light reseiving section and for strong light not to get into there.

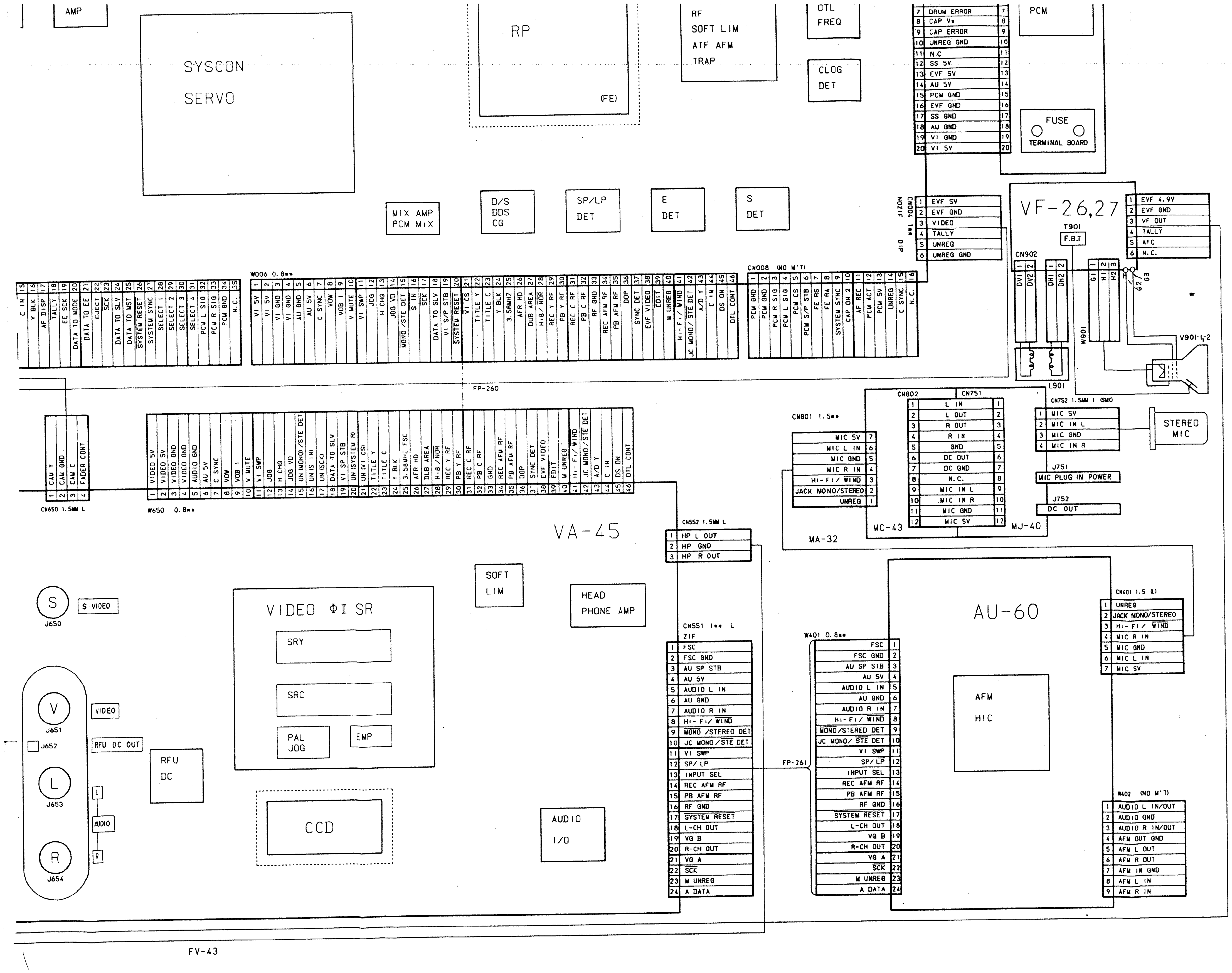
[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.

[Semiconductor for Correction List Display]
Part code and part name of the semiconductor for correction of the print board is described in the space of each print figure. Use this list when ordering parts.

Q187(F-21)Q188(F-22)　Q195(C-12)


E
F
G
H
I
J
K
L
M
N
O
VC-67
PROCESS
ENCODER
MICON
DM
CN301
CN302
CN304 5MK
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
CHECK
CN200 1.5MM
RF CH1
PCM OUT
RF OUT
RF SWP
GND
ZOOM SW
CN306 L 5MK
ZOOM TELE
ZOOM WIDE
ZOOM CONT
CN307 L
Y OUT
GND
C OUT
FADER CONT
AF-54
W80
AF CLK
CAM 4.9V
YH LPF OUT
REF 1
REF 2
REF 3.5
CLP 4
HD
VD
CAM GND
CS
AE WIND
JCS
DATA IN
DATA OUT
SCK
AF DISPLAY
CN303
N.C.
CN801 4P 5MK
J CS
J SI
J SCK
GND
CN305 MDL
SS GND
CAM CS
DATA TO MODE
DATA TO CAM
SCK
SYSTEM RESET
AF DISPLAY
CAM DD ON
LANC TO CAM
CAM TO LANC
N.C.
SS 4.9V
DRIVE
DRIVE
AMP
CAP DRIVE
SYSCON
SERVO
MIX AMP
PCM MIX
VV-35
W005 0.8mm
DDS B
DDS W
VD
HD
VTR POWER
UNREG
SS 5V
SS GND
RF SWP
TITLE Y
VIDEO GND
TITLE C
VIDEO 5V
A/D Y
C IN
Y BLK
AF DISP
TALLY
EE SCK
DATA TO MODE
DATA TO EE
EJECT
SCK
DATA TO SLV
DATA TO MST
SYSTEM RESET
SYSTEM SYNC
SELECT 1
SELECT 2
SELECT 3
SELECT 4
C SYNC
PCM L SIG
PCM R SIG
PCM GND
N.C.
W006 0.8mm
VI 5V
VI 5V
VI GND
VI GND
AU GND
AU 5V
C SYNC
VDW
VOB 1
V MUTE
VI SWP
JOG
H CHG
JOG VD
MONO/STE DET
S IN
SCK
DATA TO SLV
FP-262
FP-259
FD-15
LCD
MODE CON
TALLY LED
W201 0.8mm
CHASIS GND
SIRCS SIG
SS GND
LANC DC
LANC SIG
K OUT 4
K OUT 3
K IN 2
K IN 1
K IN 0
K IN 4
K IN 5
K IN 3
K OUT 2
K OUT 1
K OUT 0
SS 5V
VTR SW
LANC TO LANC
LANC TO EVR
CAM POWER
AF DISP
SYSTEM RESET
SCK
DATA TO SLV
DATA TO SLV
CAM CS
SS GND
CN201 1MM L ZIF
SELECT 3
SELECT 2
SELECT 1
SYSTEM SYNC
SYSTEM RESET
DATA TO MST
DATA TO SLV
SCK
EJECT
DATA TO EE
DATA TO MODE
EE SCK
TALLY
AF DISP
Y BLK
C IN
A/D Y
VIDEO 5V
TITLE C
VIDEO GND
TITLE Y
RF SWP
SS GND
SS 5V
UNREG
VTR POWER
HD
VD
DDS W
DDS B
CN650 1.5MM L
CAM Y
CAM GND
CAM C
FADER CONT
W650 0.8mm
VIDEO 5V
VIDEO 5V
VIDEO GND
VIDEO GND
AUDIO GND
AU 5V
C SYNC
VDW
VOB 1
V MUTE
VI SWP
JOG
H CHG
JOG VD
UN MONO/STE DET
UN (S IN)
UN (SCK)
DATA TO SLV
VI SP STB
UN SYSTEM
UN VI CS
TITLE Y
TITLE C
Y BLK
3.58MHz FSC
AFR HD
DUB AREA
H8/NDR
S
S VIDEO
J650
V
VIDEO
J651
J652
RFU DC OUT
RFU
DC
L
J653
L
AUDIO
R
R
J654
VIDEO ΦII SR
SRY
SRC
PAL JOG
EMP
CCD
FV-43
SW-120
J702
REMOTE
J701
HEADPHONE
CN701 1.5MM
HP L OUT
HP GND
HP R OUT
SS GND
LANC SIG
LANC DC
K IN 0
K OUT 3
K OUT 4
CN703 1MM
EVF 5V
EVF GND
VIDEO
TALLY
UNREG
UNREG GND
CN702 1.5MM
EVF 5V
EVF GND
VIDEO
TALLY
UNREG
UNREG GND
LITHIUM BATTERY HOLDER
LI 3V
LI GND
SF-97
FC-28
CN604 1.5MM I
HP L OUT
HP GND
HP R OUT
SS GND
LANC SIG
LANC DC
K IN 0
K OUT 3
K OUT 4
CN602 1MM L ZIF
K OUT 0
K OUT 1
K OUT 2
K IN 3
K IN 5
K IN 4
K IN 0
K IN 1
K IN 2
SS GND
SS 5V
SIRCS SIG
CN601 1MM L ZIF
SS 5V
K OUT 0
K OUT 1
K OUT 2
K IN 3
K IN 5
K IN 4
K IN 0
K IN 1
K IN 2
K OUT 3
K OUT 4
LANC SIG
LANC DC
SS GND
SIRCS SIG
CN603 1.5MM L
HP R OUT
HP GND
HP L OUT
FK-16
W501 0.8mm
K OUT 0
K OUT 1
K OUT 2
K IN 3
K IN 5
K IN 4
K IN 0
K IN 1
K IN 2
LED
SIRCS
SS 5V
SS GND
FP-263


AMP
SYSCON
SERVO
RP
(FE)
RF
SOFT LIM
ATF AFM
TRAP
OTL
FREQ
CLOG
DET
PCM
FUSE
TERMINAL BOARD
DRUM ERROR
CAP V*
CAP ERROR
UNREG GND
N.C
SS 5V
EVF 5V
AU 5V
PCM GND
EVF GND
SS GND
AU GND
VI GND
VI 5V
MIX AMP
PCM MIX
D/S
DDS
CG
SP/LP
DET
E
DET
S
DET
CN004 1** DIP
HOZIF
EVF 5V
EVF GND
VIDEO
TALLY
UNREG
UNREG GND
VF-26,27
T901
F.B.T
CN902
EVF 4.9V
EVF GND
VF OUT
TALLY
AFC
N.C.
DY1
DY2
DH1
DH2
G1
H1
H2
G2
G3
W901
V901-1,-2
L901
W006 0.8**
CN008 (NO M'T)
FP-260
CN650 1.5MM L
W650 0.8**
CAM Y
CAM GND
CAM C
FADER CONT
VA-45
CN552 1.5MM L
HP L OUT
HP GND
HP R OUT
SOFT
LIM
HEAD
PHONE AMP
CN551 1** L
ZIF
FSC
FSC GND
AU SP STB
AU 5V
AUDIO L IN
AU GND
AUDIO R IN
Hi-Fi/WIND
MONO/STEREO DET
JC MONO/STEREO DET
VI SWP
SP/LP
INPUT SEL
REC AFM RF
PB AFM RF
RF GND
SYSTEM RESET
L-CH OUT
VG B
R-CH OUT
VG A
SCK
M UNREG
A DATA
FP-261
W401 0.8**
AU-60
AFM
HIC
CN401 1.5 (L)
UNREG
JACK MONO/STEREO
Hi-Fi/WIND
MIC R IN
MIC GND
MIC L IN
MIC 5V
W402 (NO M'T)
AUDIO L IN/OUT
AUDIO GND
AUDIO R IN/OUT
AFM OUT GND
AFM L OUT
AFM R OUT
AFM IN GND
AFM L IN
AFM R IN
CN801 1.5**
MIC 5V
MIC L IN
MIC GND
MIC R IN
Hi-Fi/WIND
JACK MONO/STEREO
UNREG
MA-32
CN802
CN751
L IN
L OUT
R OUT
R IN
GND
DC OUT
DC GND
N.C.
MIC IN L
MIC IN R
MIC GND
MIC 5V
MC-43
MJ-40
CN752 1.5MM I (SMD)
MIC 5V
MIC IN L
MIC GND
MIC IN R
STEREO
MIC
J751
MIC PLUG IN POWER
J752
DC OUT
VIDEO ΦII SR
SRY
SRC
PAL
JOG
EMP
CCD
AUDIO
I/O
S
S VIDEO
J650
V
J651
VIDEO
J652
RFU DC OUT
RFU
DC
L
J653
AUDIO
R
J654
FV-43

- panel designation.
- △ : internal component.
- ☐ : adjustment for repair. *
- ━━ : B + Line *
- Circled numbers refer to waveforms. *
- ➯ : IN/OUT direction of B (+, –) line. *

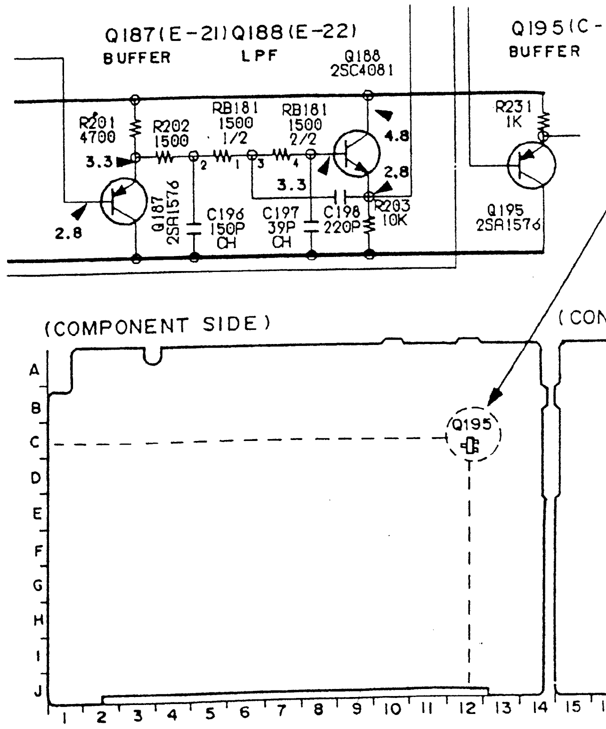
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

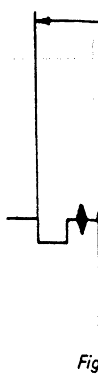
* Indicated by the color red.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.


Q187(E-21)Q188(E-22)
BUFFER
LPF
Q188
2SC4081
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
3.3
4.8
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
Q195(C-
BUFFER
R231
1K
Q195
2SA1576
(COMPONENT SIDE)
(CON
Q195
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

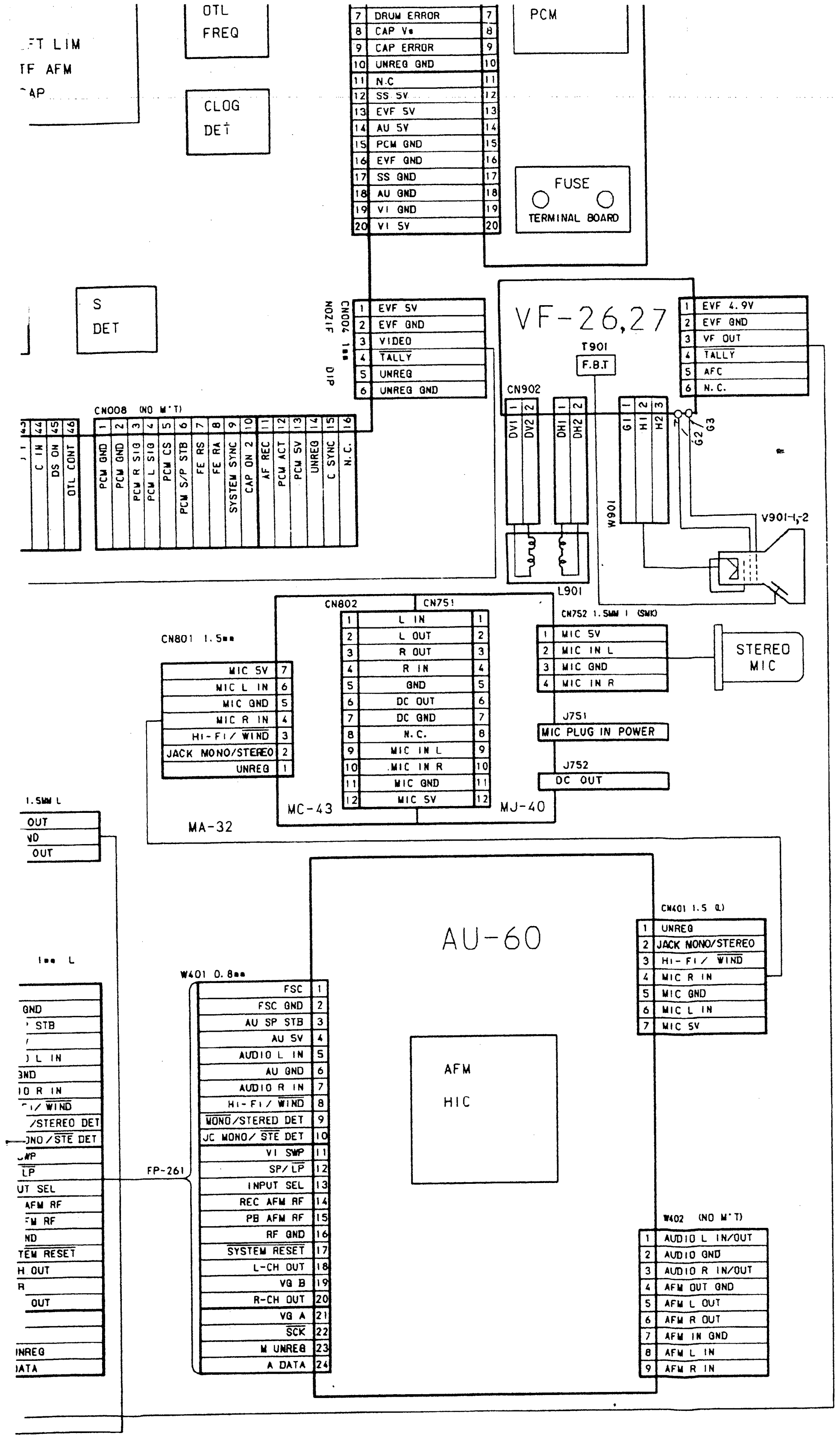
the output
can be obt



Fig

- For volta
- Voltages a
- Readings
- Readings
- Voltage producti

CCD-V101/V700


OTL FREQ
CLOG DET
S DET
PCM
FUSE
TERMINAL BOARD
VF-26,27
T901
F.B.T
CN902
V901-1,-2
L901
W901
CN008
CN802
CN751
CN801
CN752
J751
J752
STEREO MIC
MIC PLUG IN POWER
DC OUT
MA-32
MC-43
MJ-40
AU-60
AFM HIC
W401
FP-261
CN401
W402

- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair. *
- ━━ : B + Line *
- Circled numbers refer to waveforms. *
- ⇨ : IN/OUT direction of B (+, —) line. *

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

* Indicated by the color red.

the output waveform of Fig. a and the picture of Fig. b can be obtain.

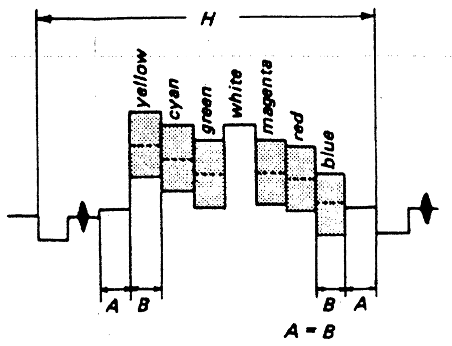

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Video output waveform.

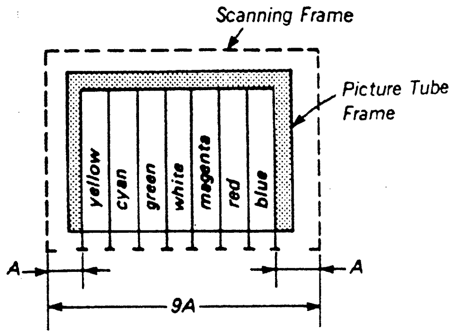

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen

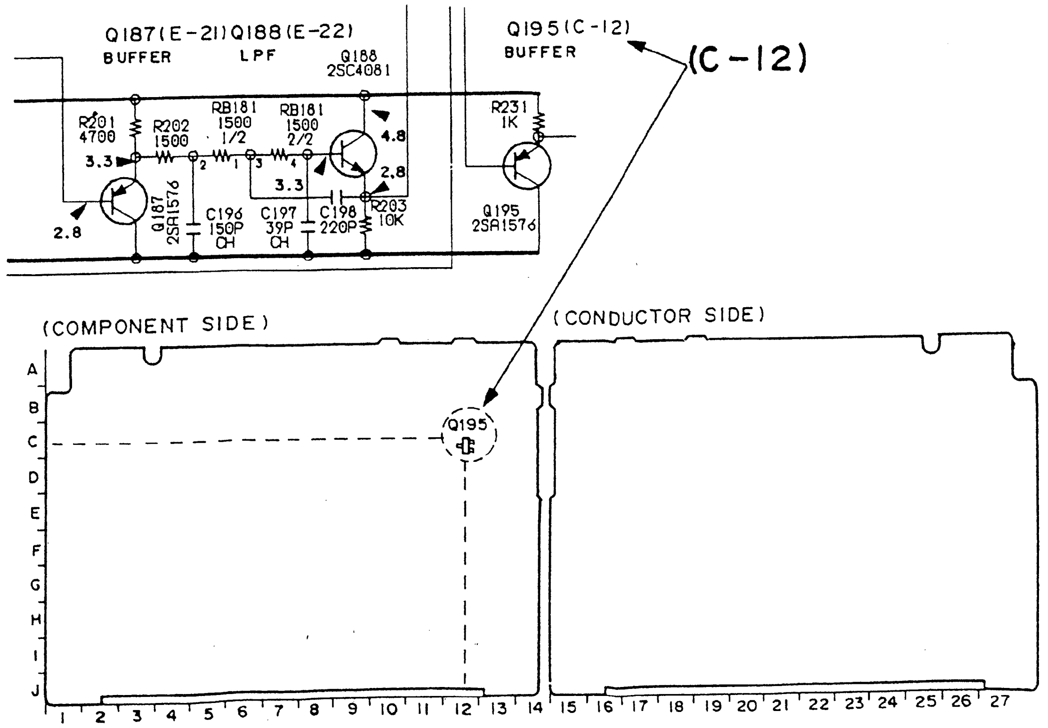
- **For voltage and waveforms. (REC / PB mode)**
- Voltages are dc between ground and measurement points. *
- Readings are taken with a color-bar signal input. *
- Readings are taken with a digital multimeter (DC10MΩ). *
- Voltage variations may be noted due to normal production tolerances. *

spective boards are replaced, remove the respective ICs from the old boards and install them to the new once respectively.

- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity.
For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light reseiving section and for strong light not to get into there.

[SEMICONDUCTOR LOCATION]

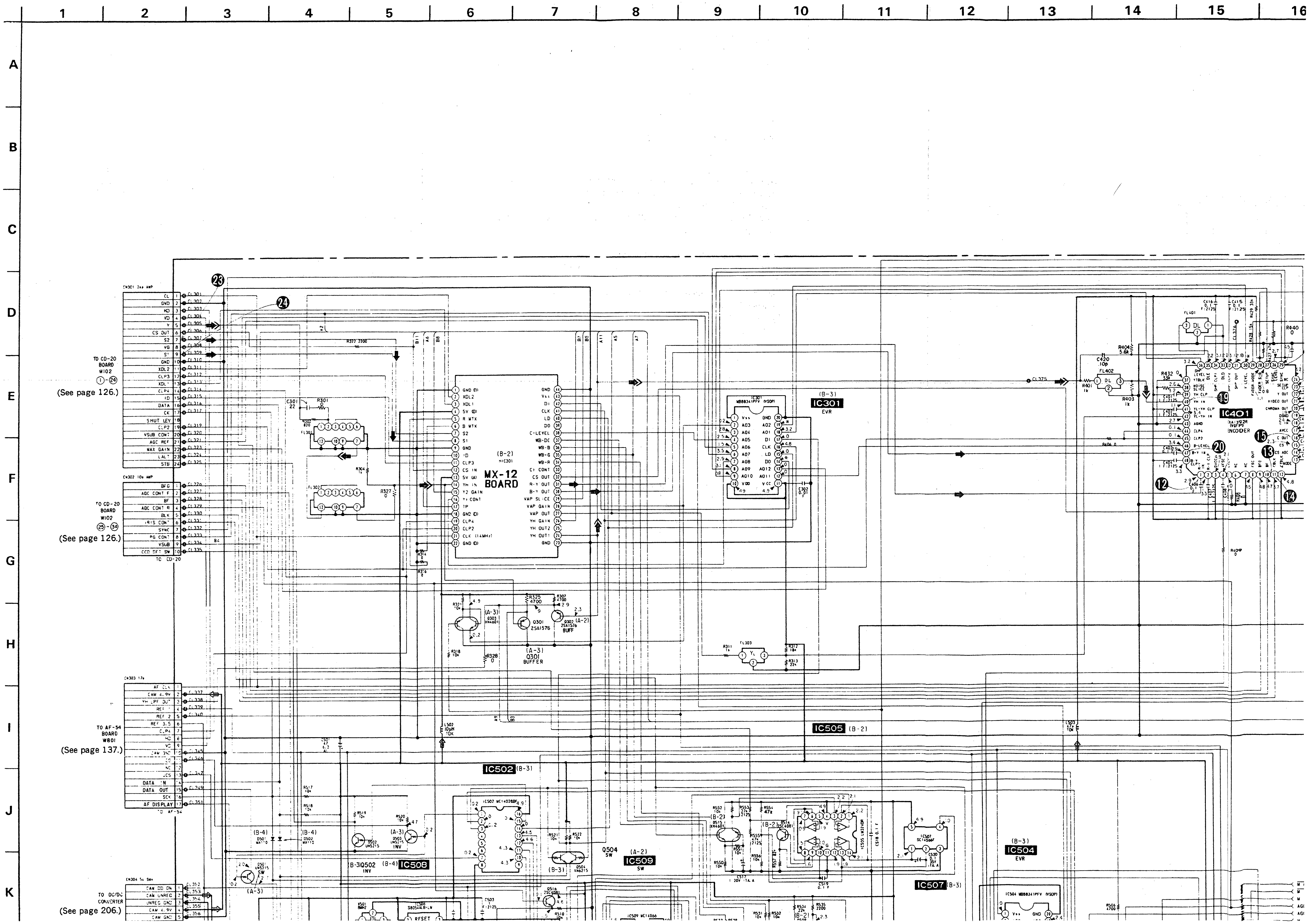
In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.


Q187(E-21)
Q188(E-22)
BUFFER
LPF
Q188 2SC4081
Q195(C-12)
BUFFER
(C-12)
R201 4700
R202 1500
RB181 1500 1/2
RB181 1500 2/2
R231 1K
3.3
3.3
4.8
2.8
2.8
Q187 2SA1576
C196 150P CH
C197 39P CH
C198 220P
R203 10K
Q195 2SA1576
(COMPONENT SIDE)
(CONDUCTOR SIDE)
Q195
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27

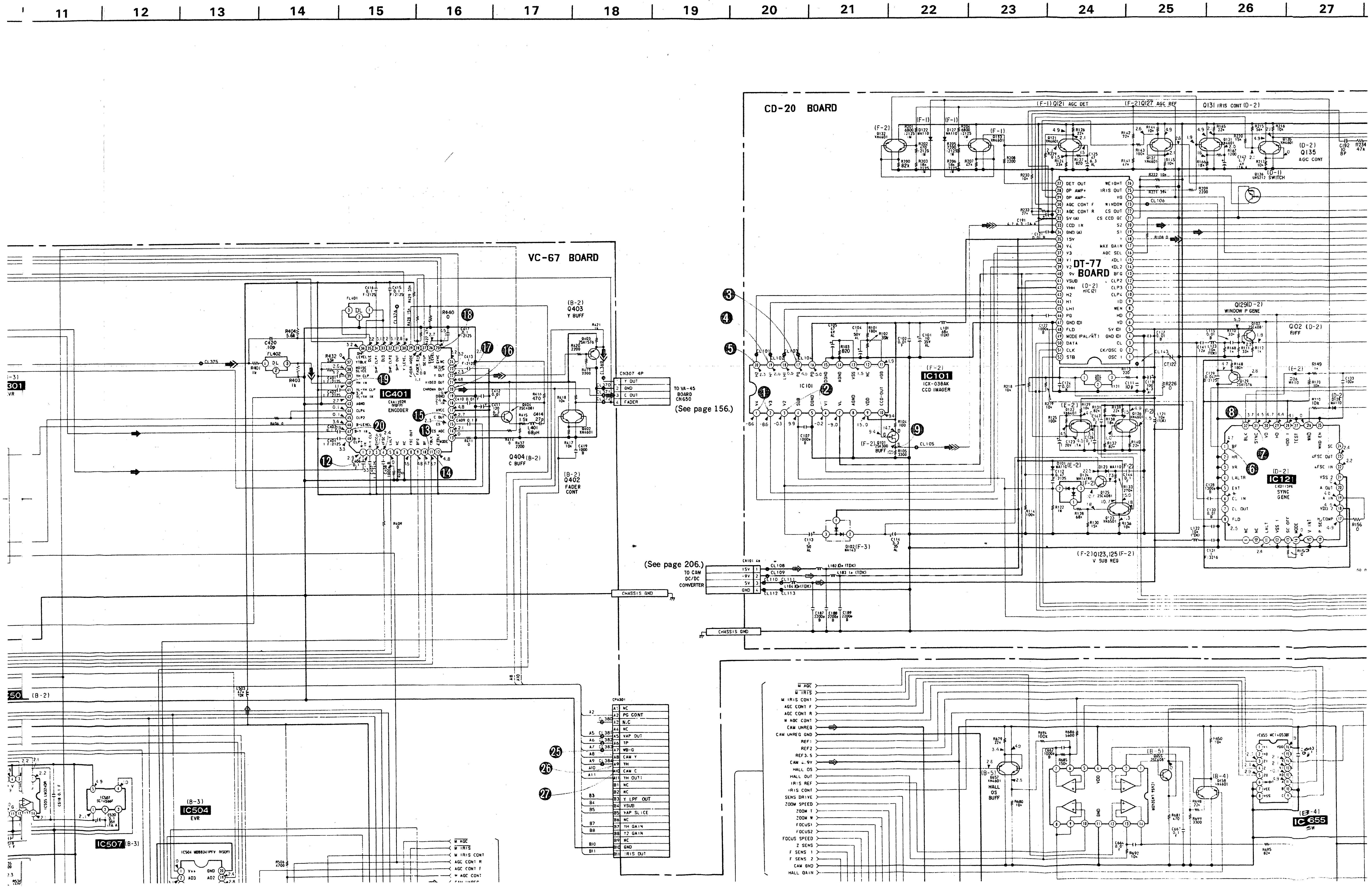
[Semiconductor for Correction List Display]
Part code and part name of the semiconductor for correction of the print board is described in the space of each print figure. Use this list when ordering parts.

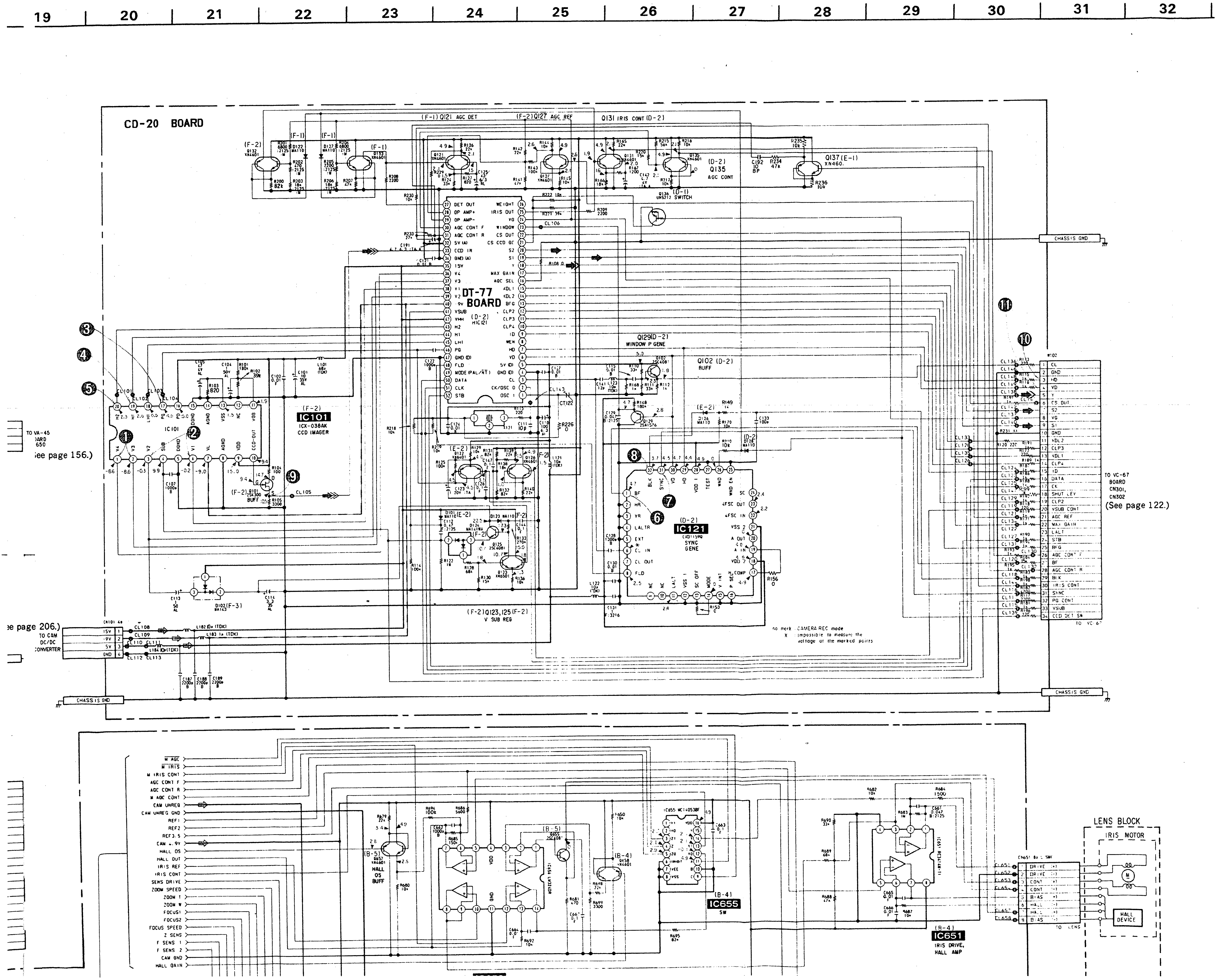
VC-67 (CAMERA PROCESS, ZOOM/FOCUS), CD-20 (CCD IMAGER) SCHEMATIC DIAGRAM

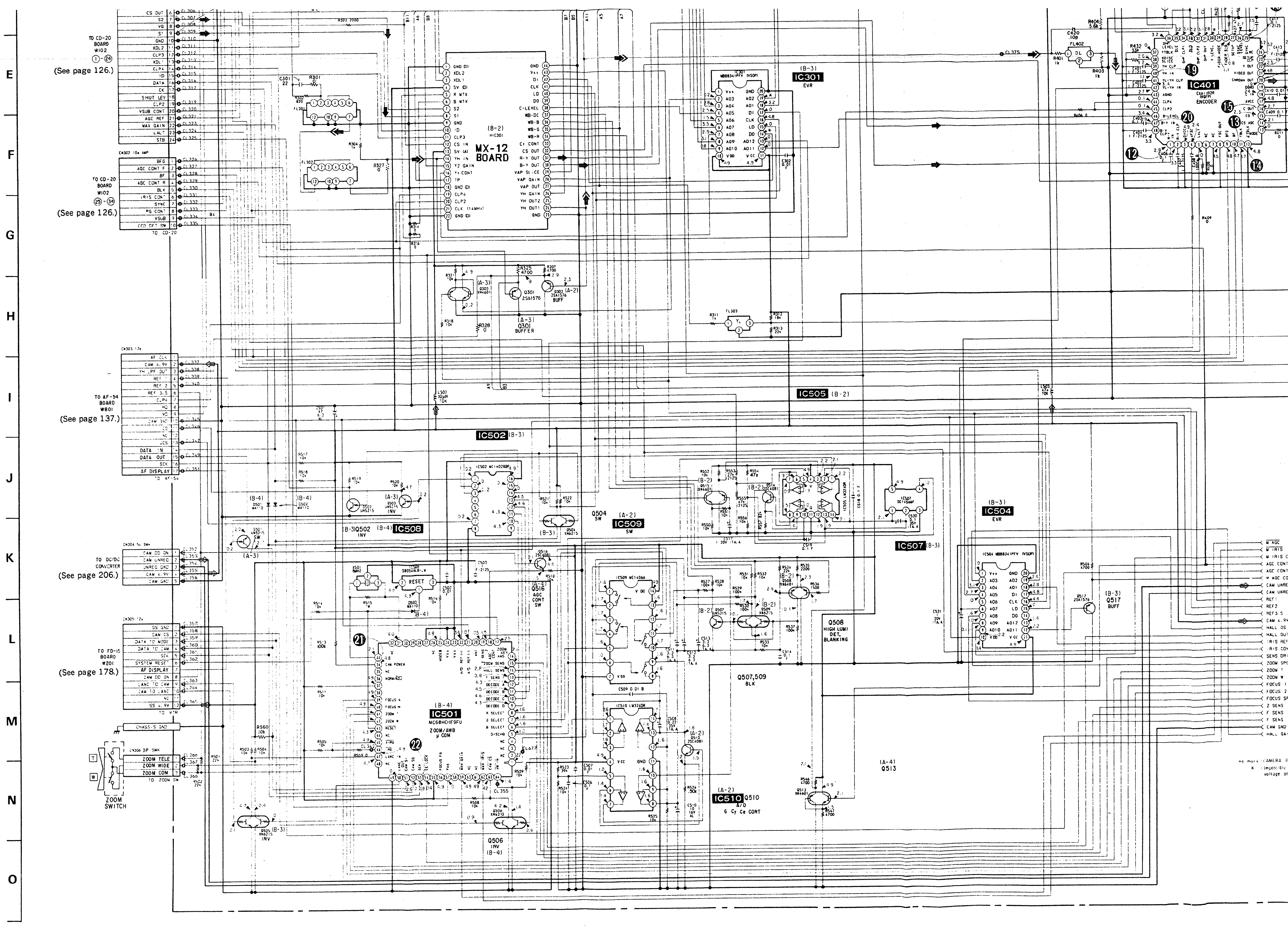
—Ref. No. VC-67, CD-20 BOARDS : 4000 series—



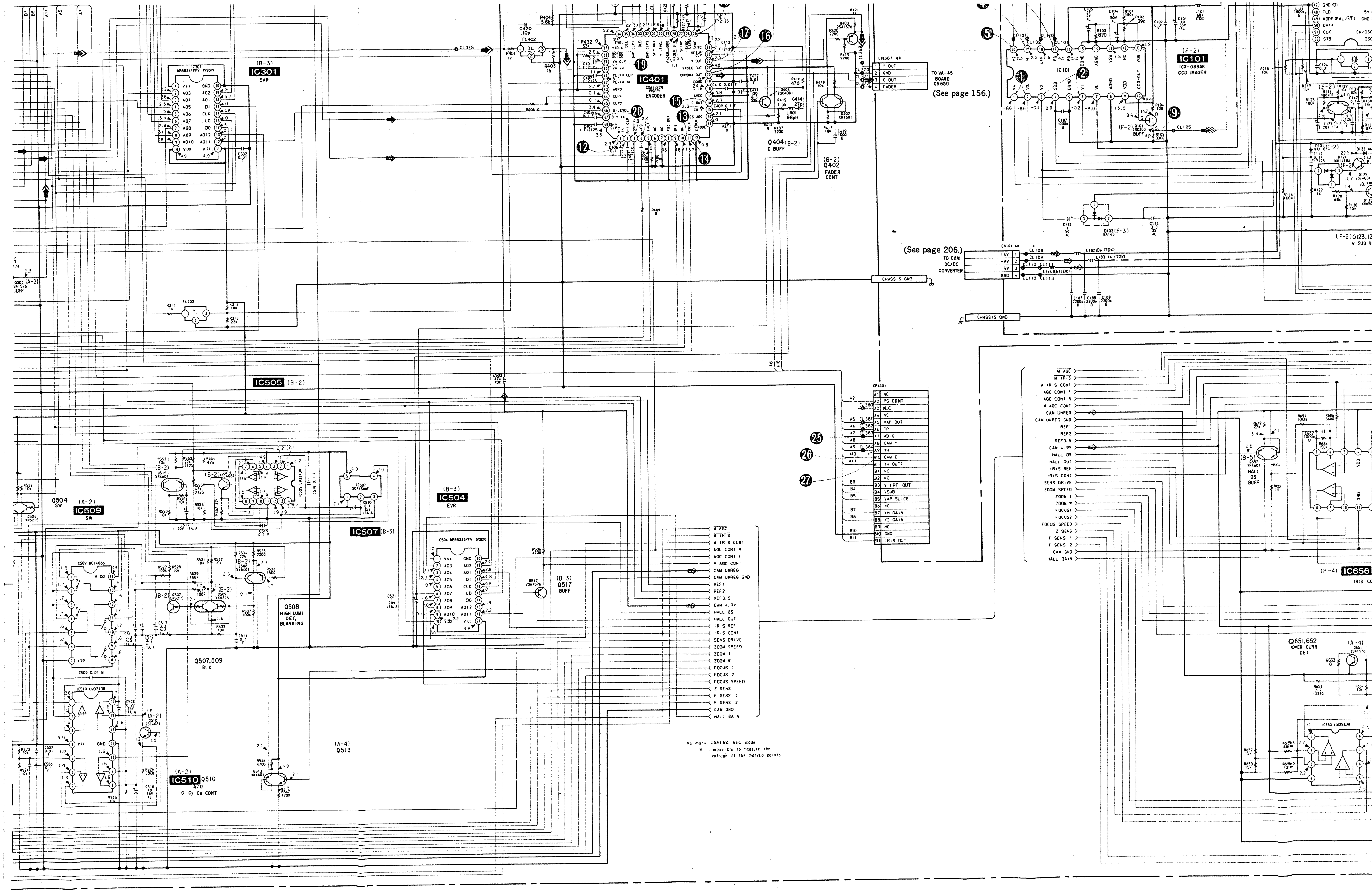
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
K
TO CD-20 BOARD W102 ①-㉔
(See page 126.)
TO CD-20 BOARD W102 ㉕-㉞
(See page 126.)
TO AF-54 BOARD W801
(See page 137.)
TO DC/DC CONVERTER
(See page 206.)
CN301 24P AMP
CN302 10P AMP
CN303 17P
CN304 5P SMK
TO CD-20
TO AF-54
(B-2)
MX-12 BOARD
(B-3)
IC301
EVR
IC401
ENCODER
IC505 (B-2)
IC502 (B-3)
IC508
IC509
SW
IC507 (B-3)
IC504
EVR
Q301
2SA1576
BUFFER
Q302
BUFF
Q503
INV
Q502
INV
Q504
SW
㉓
㉔
⑫
⑬
⑭
⑮
⑲
⑳


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
VC-67 BOARD
CD-20 BOARD
DT-77 BOARD
(D-2) HIC121
IC401
CXA1592R (VSFP)
ENCODER
(B-2) Q403 Y BUFF
Q404 (B-2) C BUFF
(B-2) Q402 FADER CONT
FL401 DL
FL402 DL
CN307 4P
Y OUT
GND
C OUT
FADER
TO VA-45 BOARD CN650
(See page 156.)
(F-2) IC101
ICX-038AK
CCD IMAGER
(F-2) Q101 2SK300 BUFF
(F-1) Q121 AGC DET
(F-2) Q127 AGC REF
Q131 IRIS CONT (D-2)
(D-2) Q135 AGC CONT
(D-1) Q136 UN5212 SWITCH
Q129 (D-2) WINDOW P GENE
Q02 (D-2) BUFF
(D-2) IC121
CXD1159Q
SYNC GENE
(F-2) Q123,125 (F-2) V SUB REG
D102 (F-3)
(See page 206.)
TO CAM DC/DC CONVERTER
CN101 4P
15V
-9V
5V
GND
CHASSIS GND
CN301
NC
PG CONT
N.C
NC
VAP OUT
TP
WB-G
CAM Y
YH
CAM C
YH OUT1
NC
NC
Y LPF OUT
VSUB
VAP SLICE
NC
YH GAIN
Y2 GAIN
NC
GND
IRIS OUT
(B-3) IC504 EVR
IC504 MB88341PFV (VSOP)
IC507 (B-3)
IC507 SC1456BF
IC505 LM324PW
(B-2)
M AGC
M IRIS
M IRIS CONT
AGC CONT F
AGC CONT R
M AGC CONT
CAM UNREG
CAM UNREG GND
REF1
REF2
REF3.5
CAM -9V
HALL OS
HALL OUT
IRIS REF
IRIS CONT
SENS DRIVE
ZOOM SPEED
ZOOM T
ZOOM W
FOCUS1
FOCUS2
FOCUS SPEED
Z SENS
F SENS 1
F SENS 2
CAM GND
HALL GAIN
(B-5) Q657 XN4601 HALL OS BUFF
(B-5) Q655 2SC4081
(B-4) Q658 XN4601
IC655 MC14053BF
(B-4) IC655 SW
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉕
㉖
㉗


19
20
21
22
23
24
25
26
27
28
29
30
31
32
CD-20 BOARD
(F-1) Q121 AGC DET
(F-2) Q127 AGC REF
Q131 IRIS CONT (D-2)
(D-2) Q135 AGC CONT
Q137 (E-1)
Q136 (D-1) SWITCH
DT-77 BOARD
(D-2) HIC121
(F-2) IC101
ICX-038AK
CCD IMAGER
(F-2) Q101 BUFF
Q129 (D-2) WINDOW P GENE
Q102 (D-2) BUFF
(D-2) IC121
SYNC GENE
(F-2) Q123, 125 (F-2)
V SUB REG
D102 (F-3)
CHASSIS GND
TO VA-45 BOARD CN650 (See page 156.)
(See page 206.)
TO CAM DC/DC CONVERTER
TO VC-67 BOARD CN301, CN302 (See page 122.)
no mark : CAMERA REC mode
X : impossible to measure the voltage of the marked points
M AGC
M IRIS
M IRIS CONT
AGC CONT F
AGC CONT R
M AGC CONT
CAM UNREG
CAM UNREG GND
REF1
REF2
REF3.5
CAM +9V
HALL OS
HALL OUT
IRIS REF
IRIS CONT
SENS DRIVE
ZOOM SPEED
ZOOM 1
ZOOM W
FOCUS1
FOCUS2
FOCUS SPEED
Z SENS
F SENS 1
F SENS 2
CAM GND
HALL GAIN
(B-5) Q657 HALL OS BUFF
(B-4) Q658
(B-4) IC655 SW
(B-4) IC651 IRIS DRIVE, HALL AMP
LENS BLOCK
IRIS MOTOR
HALL DEVICE
TO LENS



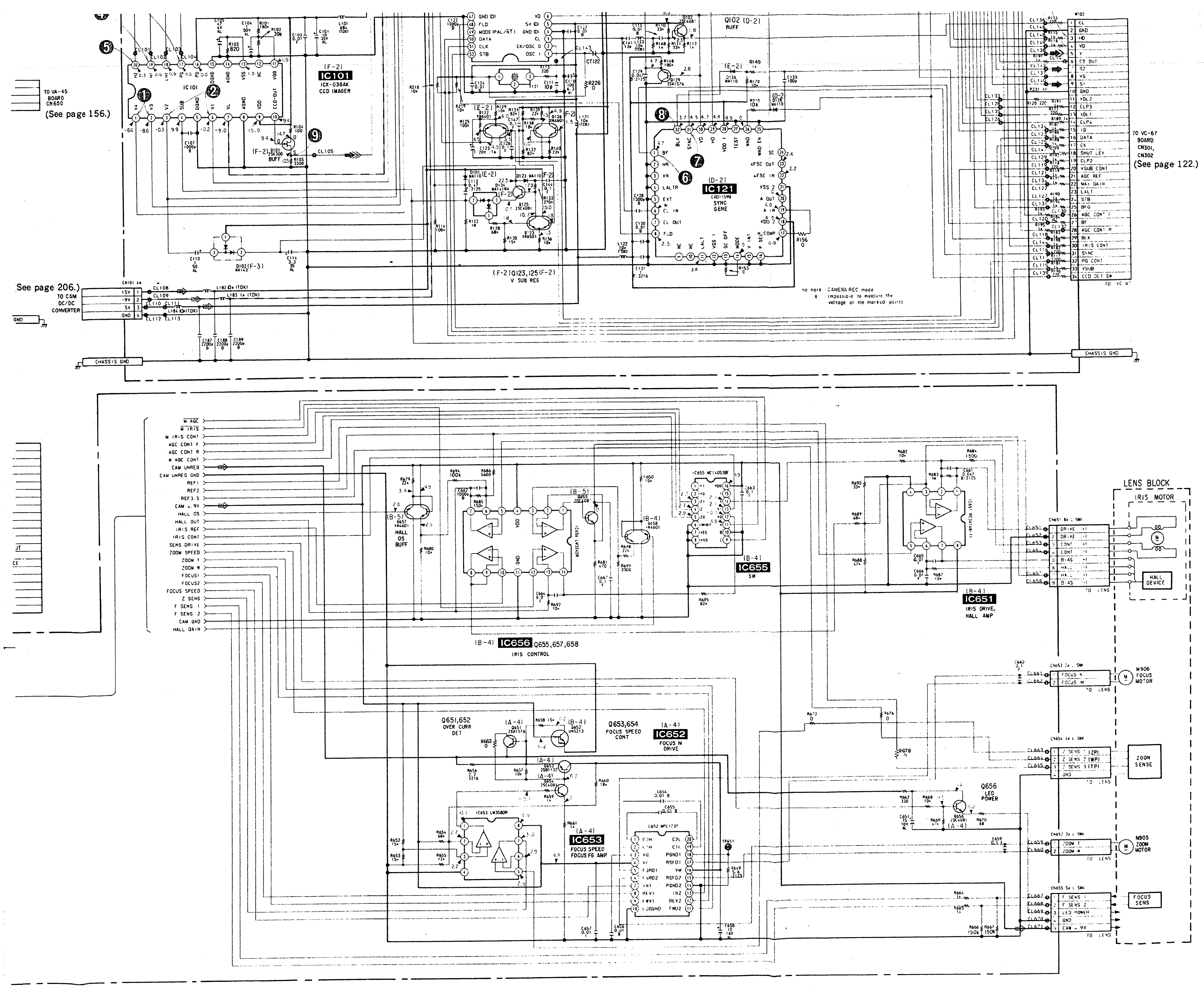
E
F
G
H
I
J
K
L
M
N
O
TO CD-20 BOARD W102 ①-㉔
(See page 126.)
TO CD-20 BOARD W102 ㉕-㉞
(See page 126.)
TO AF-54 BOARD W801
(See page 137.)
TO DC/DC CONVERTER
(See page 206.)
TO FD-15 BOARD W201
(See page 178.)
ZOOM SWITCH
ZOOM TELE
ZOOM WIDE
ZOOM COM
MX-12 BOARD
(B-2) IC301
(B-3) IC301 EVR
IC401 ENCODER
(A-3) Q301 BUFFER
IC505 (B-2)
IC502 (B-3)
(B-3)Q502 INV
(B-4) IC508
Q504 (A-2) IC509 SW
Q516 AGC CONT SW
(B-3) IC504 EVR
IC507 (B-3)
(B-3) Q517 BUFF
Q508 HIGH LUMI DET, BLANKING
Q507,509 BLK
(B-4) IC501 MC68HC11E9FU ZOOM/AWB µ COM
㉑
㉒
⑫
⑬
⑭
⑮
⑲
⑳
(A-2) IC510 Q510 A/D G Cy Ce CONT
(A-4) Q513
Q506 INV (B-4)
Q505 (B-3) INV
RESET


IC301 EVR
MB88341PFV (VSOP)
IC401 ENCODER
CXA1152R
IC101 ICX-038AK CCD IMAGER
(F-2) Q101 2SK300 BUFF
D102 (F-3)
(F-2) Q123,12
V SUB R
CN307 4P
Y OUT
GND
C OUT
FADER
TO VA-45 BOARD CN650
(See page 156.)
Q404 (B-2) C BUFF
(B-2) Q402 FADER CONT
Q403 2SA1576
(See page 206.)
TO CAM DC/DC CONVERTER
CN101
15V
-9V
5V
GND
CHASSIS GND
IC505 (B-2)
IC505 LM324DR
IC507 SC7S66F
IC507 (B-3)
(B-3) IC504 EVR
IC504 MB88341PFV (VSOP)
Q504 (A-2) SW
IC509 SW
IC509 MC14066
IC510 LM324DR
(A-2) IC510 Q510 A/D G Cy Ce CONT
Q507,509 BLK
Q508 HIGH LUMI DET, BLANKING
(B-3) Q517 BUFF
(A-4) Q513
Q302 (A-2) 2SA1576 BUFF
CPA301
A1 NC
A2 PG CONT
A3 N.C
A4 NC
A5 VAP OUT
A6 TP
A7 WB-G
A8 CAM Y
A9 YH
A10 CAM C
A11 YH OUT1
B1 NC
B2 NC
B3 Y LPF OUT
B4 VSUB
B5 YAP SLICE
B6 NC
B7 YH GAIN
B8 YZ GAIN
B9 NC
B10 GND
B11 IRIS OUT
M AGC
M IRIS
M IRIS CONT
AGC CONT R
AGC CONT F
M AGC CONT
CAM UNREG
CAM UNREG GND
REF1
REF2
REF3.5
CAM 4.9V
HALL OS
HALL OUT
IRIS REF
IRIS CONT
SENS DRIVE
ZOOM SPEED
ZOOM T
ZOOM W
FOCUS 1
FOCUS 2
FOCUS SPEED
Z SENS
F SENS 1
F SENS 2
CAM GND
HALL GAIN
(B-5) Q653 HALL OS BUFF
(B-4) IC656
IRIS CO
Q651,652 OVER CURR DET
IC653 LM358DR
25
26
27

● mark : CAMERA REC mode
× : Impossible to measure the voltage at the marked points.

CAMERA (1) **CAMERA (1)**

CCD-V101/V700


IC101
ICX-038AK
CCD IMAGER
(F-2)
Q101 2SK300 BUFF
Q102 (D-2) BUFF
IC121
CXD1159Q
SYNC
GENE
(D-2)
(F-2) Q123,125 (F-2)
V SUB REG
TO VA-45 BOARD CN650
(See page 156.)
TO VC-67 BOARD CN301, CN302
(See page 122.)
See page 206.)
TO CAM DC/DC CONVERTER
CHASSIS GND
no mark : CAMERA REC mode
x : impossible to measure the voltage at the marked points
M AGC
M IRIS
M IRIS CONT
AGC CONT F
AGC CONT R
M AGC CONT
CAM UNREG
CAM UNREG GND
REF1
REF2
REF3.5
CAM +-9V
HALL OS
HALL OUT
IRIS REF
IRIS CONT
SENS DRIVE
ZOOM SPEED
ZOOM T
ZOOM W
FOCUS1
FOCUS2
FOCUS SPEED
Z SENS
F SENS 1
F SENS 2
CAM GND
HALL GAIN
IC655 MC14053BF
(B-4) IC655 SW
(B-4) IC651 IRIS DRIVE, HALL AMP
(B-4) IC656 Q655,657,658 IRIS CONTROL
(B-5) Q657 HALL OS BUFF
Q651,652 OVER CURR DET
Q653,654 FOCUS SPEED CONT
(A-4) IC652 FOCUS M DRIVE
(A-4) IC653 FOCUS SPEED FOCUS FG AMP
IC653 LM358DR
IC652 MPC1737
Q656 LED POWER
LENS BLOCK
IRIS MOTOR
HALL DEVICE
M906 FOCUS MOTOR
ZOOM SENSE
M905 ZOOM MOTOR
FOCUS SENS
TO LENS

• **Signal path**

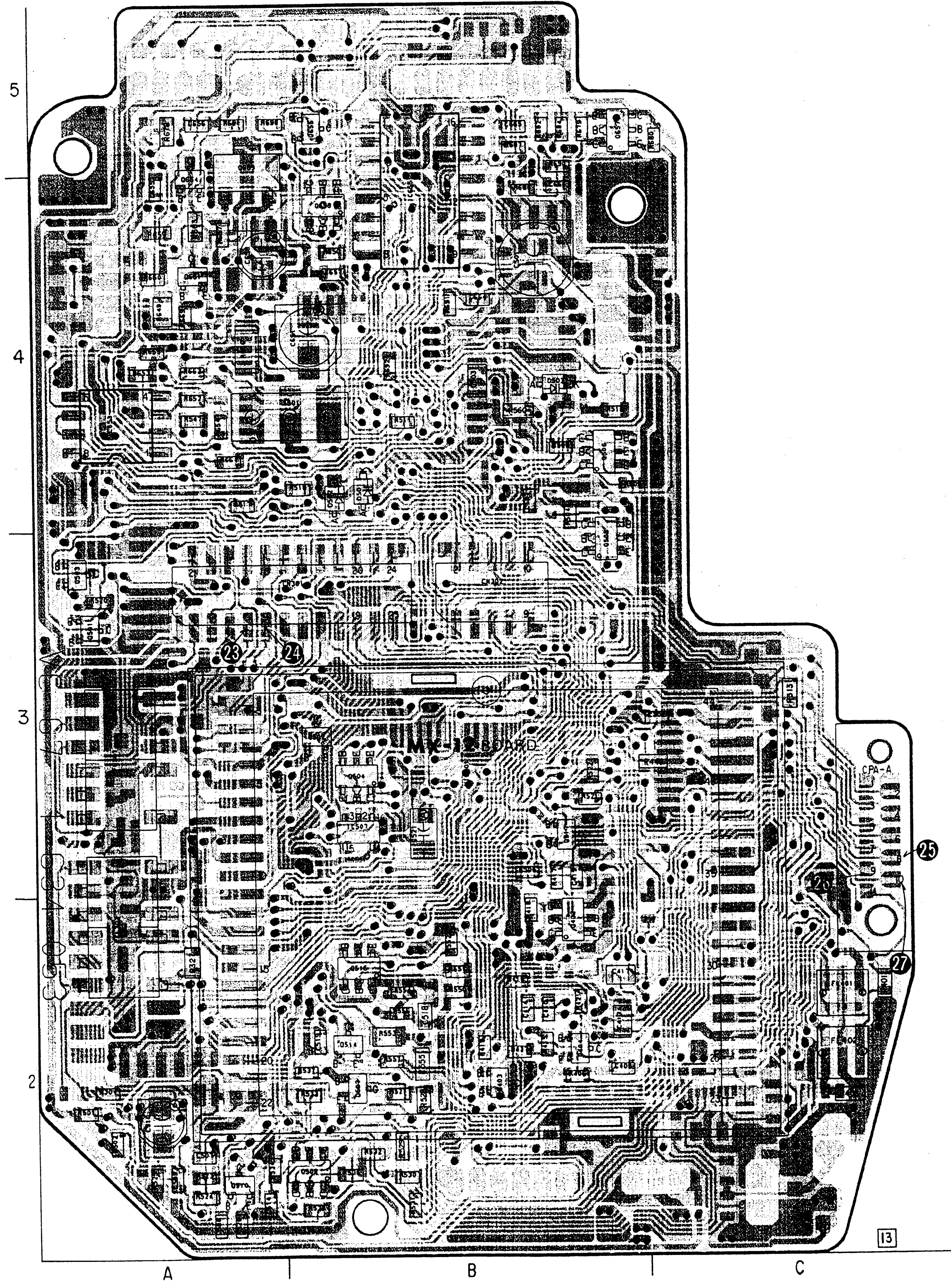
	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	➡

CAMERA (1)   CAMERA (1)

VC-67 (CAMERA PROCESS, ZOOM/FOCUS), CD-20 (CCD IMAGER) PRINTED WIRING BOARD

—Ref. No. VC-67, CD-20 BOARDS : 4000 series—

VC-67 BOARD (COMPONENT SIDE)


5
4
3
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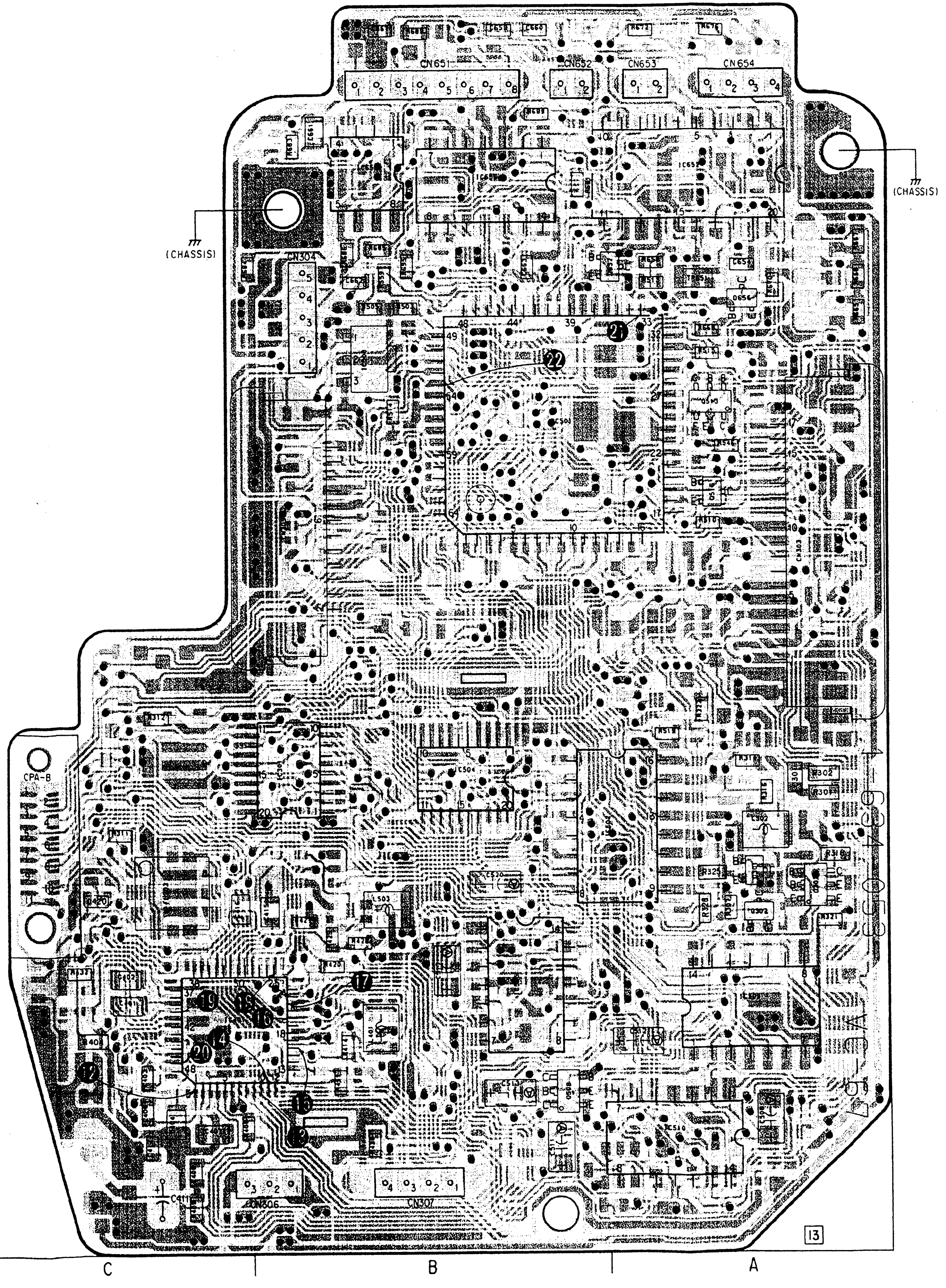
MK-13 BOARD
CPA-A
23
24
25
27
13
A
B
C

VC-67 BOARD (CONDUCTOR SIDE)


(CHASSIS)
(CHASSIS)
CN651
CN652
CN653
CN654
CN304
CPA-B
CN306
CN307
21
22
17
12
13
13
C
B
A

VC-67 BOARD

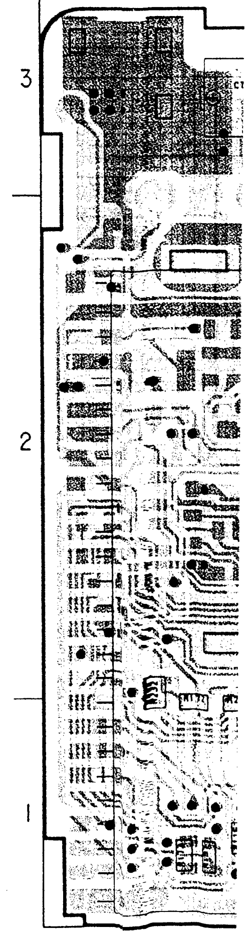
DIODE

D501	8-719-404-46	DIODE MA110
D502	8-719-404-46	DIODE MA110
D503	8-719-404-46	DIODE MA110
D504	8-719-404-46	DIODE MA110

IC

IC301	8-759-946-00	IC MB88341PFV
IC401	8-752-038-XX	IC CXA1392R
IC501	8-759-037-46	IC MC68HC11E9F
IC502	8-759-008-95	IC MC14028BF
IC504	8-759-946-00	IC MB88341PFV
IC505	8-759-100-95	IC UPC324G2
IC507	8-759-030-74	IC SC14S66FER
IC508	8-759-937-56	IC S-8054ALB-LM
IC509	8-759-932-54	IC MC14066BF
IC510	8-759-100-95	IC UPC324G2
IC651	8-759-981-82	IC RC3414M
IC652	8-759-037-20	IC MPC1737MR
IC653	8-759-998-98	IC LM358DR
IC655	8-759-009-07	IC MC14053BF
IC656	8-759-100-95	IC UPC324G2

CD-20 BOARD



ꞁRD

DIODE

8-719-404-46	DIODE MA110
3-719-404-46	DIODE MA110
3-719-404-46	DIODE MA110
3-719-404-46	DIODE MA110

IC

3-759-946-00	IC MB88341PFV
3-752-038-XX	IC CXA1392R
8-759-037-46	IC MC68HC11E9FU
8-759-008-95	IC MC14028BF
3-759-946-00	IC MB88341PFV
-759-100-95	IC UPC324G2
-759-030-74	IC SC14S66FER
8-759-937-56	IC S-8054ALB-LM-S
8-759-932-54	IC MC14066BF
8-759-100-95	IC UPC324G2
-759-981-82	IC RC3414M
-759-037-20	IC MPC1737MR
-759-998-98	IC LM358DR
8-759-009-07	IC MC14053BF
8-759-100-95	IC UPC324G2

TRANSISTOR

Q301	8-729-905-23	TRANSISTOR 2SA1576-R
Q302	8-729-905-23	TRANSISTOR 2SA1576-R
Q303	8-729-402-84	TRANSISTOR XN4601
Q402	8-729-402-84	TRANSISTOR XN4601
Q403	8-729-905-23	TRANSISTOR 2SA1576-R
Q404	8-729-905-35	TRANSISTOR 2SC4081-R
Q501	8-729-420-50	TRANSISTOR UN5215
Q502	8-729-420-50	TRANSISTOR UN5215
Q503	8-729-420-50	TRANSISTOR UN5215
Q504	8-729-403-10	TRANSISTOR XN6215
Q505	8-729-403-10	TRANSISTOR XN6215
Q506	8-729-420-07	TRANSISTOR XN6213
Q507	8-729-420-50	TRANSISTOR UN5215
Q508	8-729-402-78	TRANSISTOR XN6401
Q509	8-729-403-10	TRANSISTOR XN6215
Q510	8-729-905-35	TRANSISTOR 2SC4081-R
Q513	8-729-402-84	TRANSISTOR XN4601
Q514	8-729-905-35	TRANSISTOR 2SC4081-R
Q515	8-729-402-84	TRANSISTOR XN4601
Q516	8-729-905-35	TRANSISTOR 2SC4081-R
Q517	8-729-905-23	TRANSISTOR 2SA1576-R
Q651	8-729-905-23	TRANSISTOR 2SA1576-R
Q652	8-729-402-42	TRANSISTOR UN5213
Q653	8-759-903-48	TRANSISTOR 2SB1132-R
Q654	8-729-905-35	TRANSISTOR 2SC4081-R
Q655	8-729-905-35	TRANSISTOR 2SC4081-R
Q656	8-729-905-35	TRANSISTOR 2SC4081-R
Q657	8-729-402-84	TRANSISTOR XN4601
Q658	8-729-402-84	TRANSISTOR XN4601

CD-20 BOARD

DIODE

D101	8-719-404-46	DIODE MA110
D102	8-719-404-52	DIODE MA143
D122	8-719-404-46	DIODE MA110
D123	8-719-404-46	DIODE MA110
D124	8-719-404-32	DIODE MA141WA
D126	8-719-404-46	DIODE MA110
D127	8-719-404-46	DIODE MA110
D128	8-719-404-46	DIODE MA110

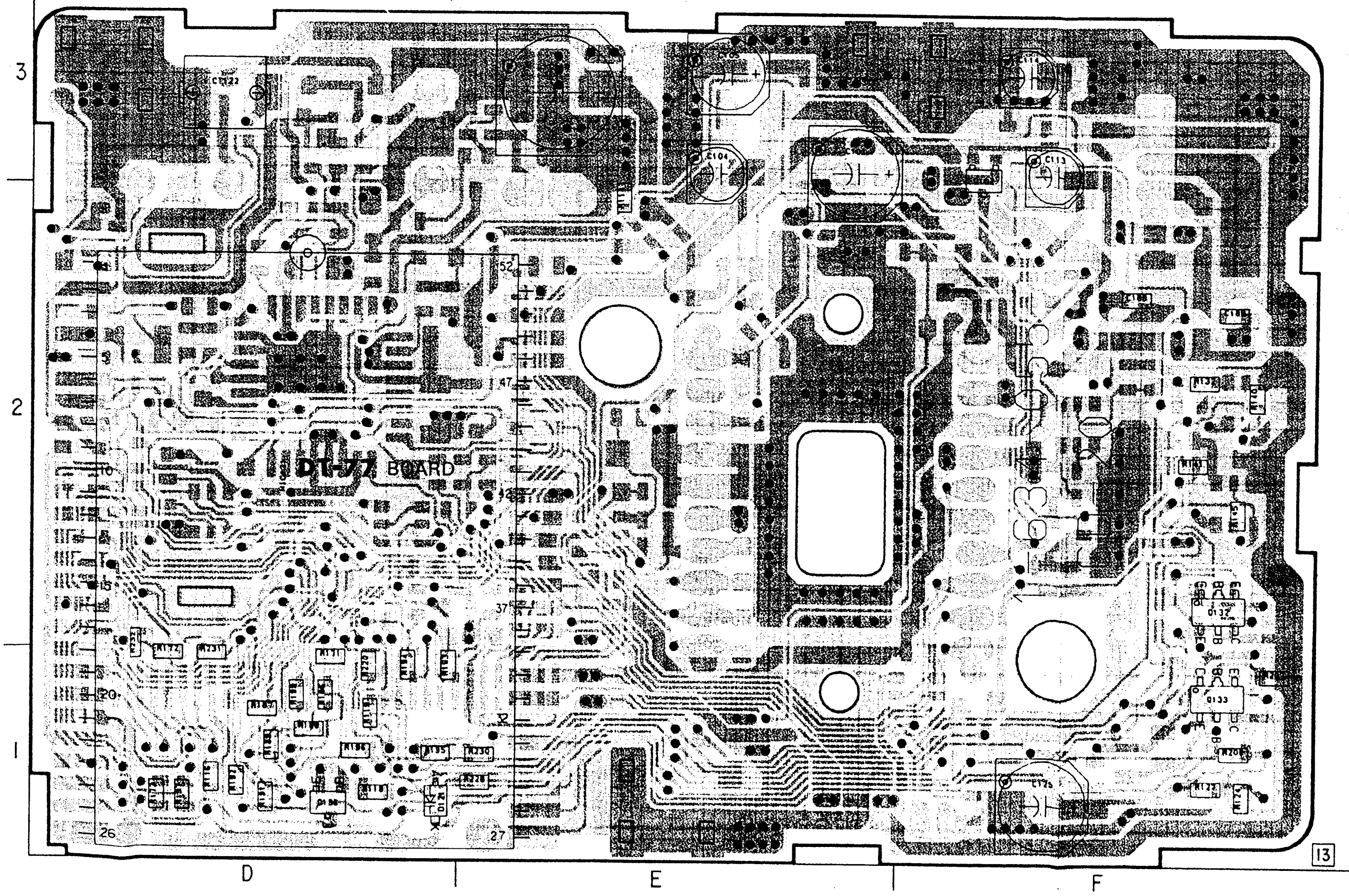
IC

IC121	8-752-326-08	IC CXD1159Q

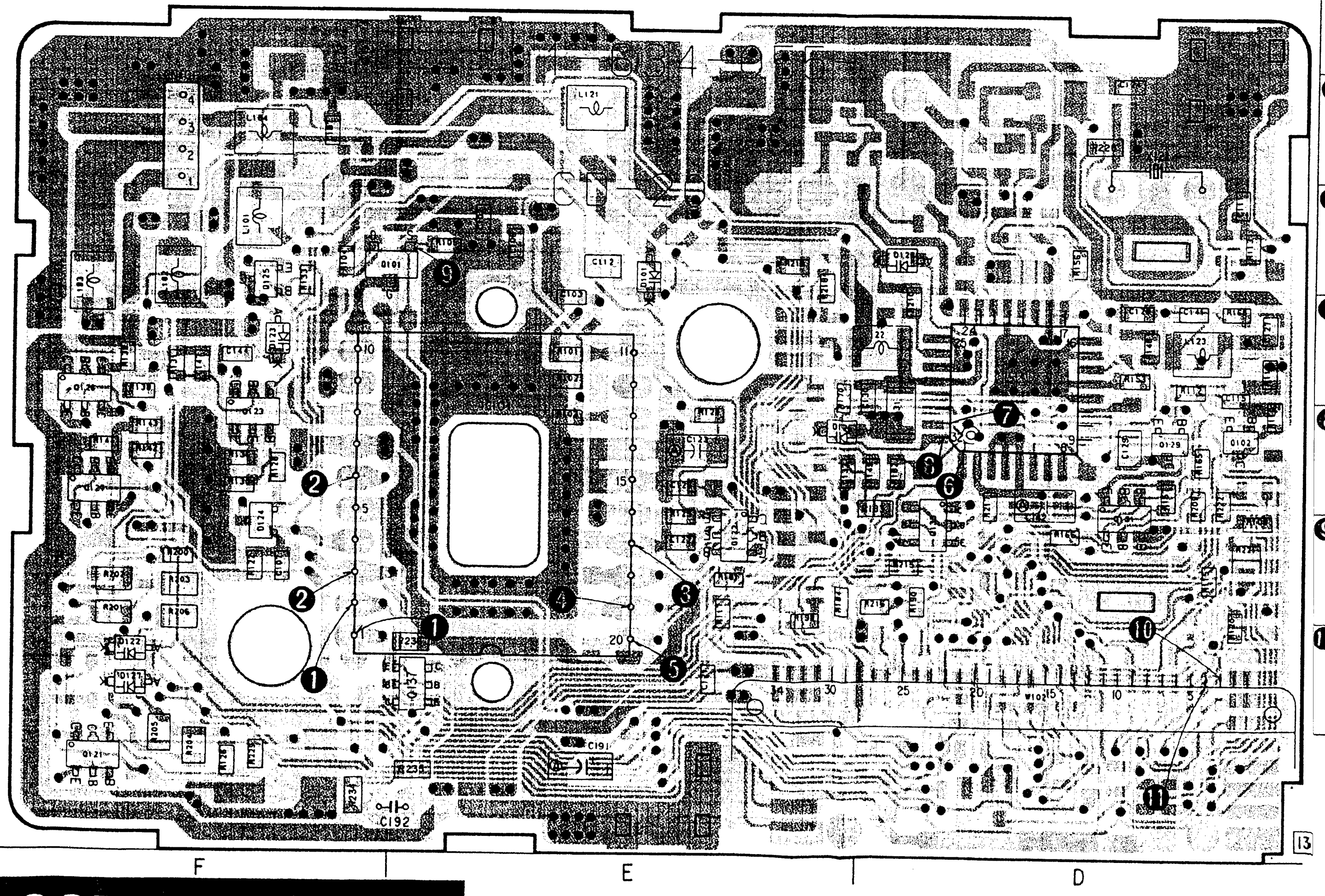
TRANSISTOR

Q101	8-729-105-53	TRANSISTOR 2SK300-3
Q102	8-729-905-35	TRANSISTOR 2SC4081-R
Q121	8-729-402-84	TRANSISTOR XN4601
Q122	8-729-402-78	TRANSISTOR XN6401
Q123	8-729-402-19	TRANSISTOR XN6501
Q125	8-729-905-35	TRANSISTOR 2SC4081-R
Q126	8-729-402-84	TRANSISTOR XN4601
Q127	8-729-402-84	TRANSISTOR XN4601
Q129	8-729-905-23	TRANSISTOR 2SA1576-R
Q131	8-729-402-84	TRANSISTOR XN4601
Q132	8-729-402-84	TRANSISTOR XN4601
Q133	8-729-402-84	TRANSISTOR XN4601
Q135	8-729-402-84	TRANSISTOR XN4601
Q136	8-729-402-45	TRANSISTOR UN5212
Q137	8-729-402-84	TRANSISTOR XN4601

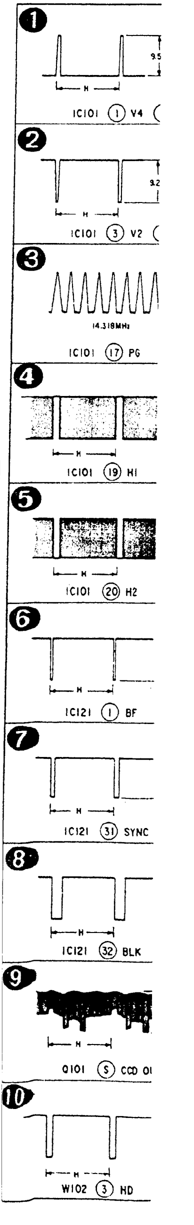
CD-20 BOARD (COMPONENT SIDE)



CD-20 BOARD (CONDUCTOR SIDE)



CD-20 BOARD



Be sure to a
block" in pag
board, compl
IC001 on the

DIODE

4-46 DIODE MA110
2 DIODE MA143
6 DIODE MA110
6 DIODE MA110
4-32 DIODE MA141WA
4-46 DIODE MA110
4-46 DIODE MA110
6 DIODE MA110

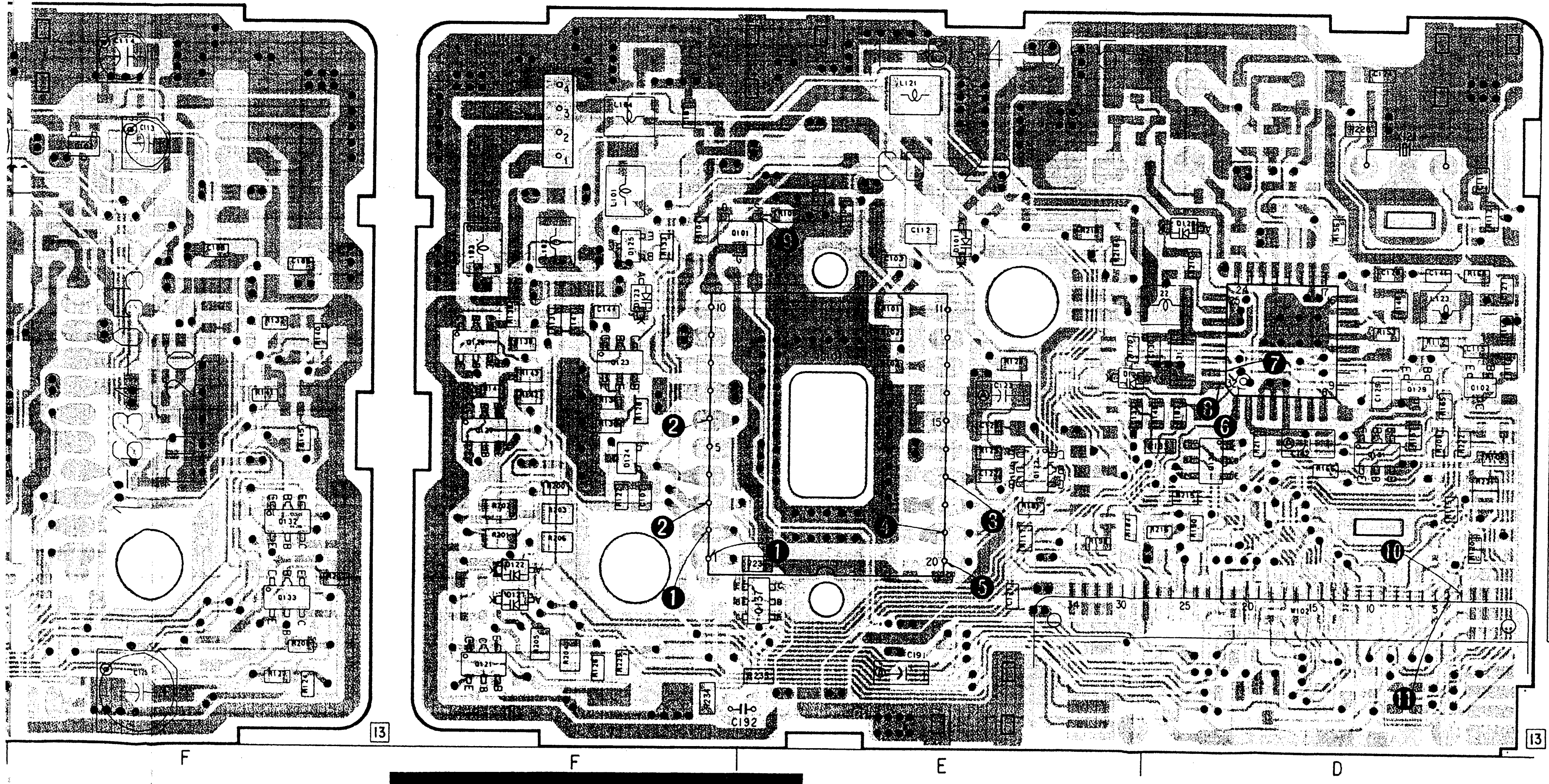
IC

6-08 IC CXD1159Q

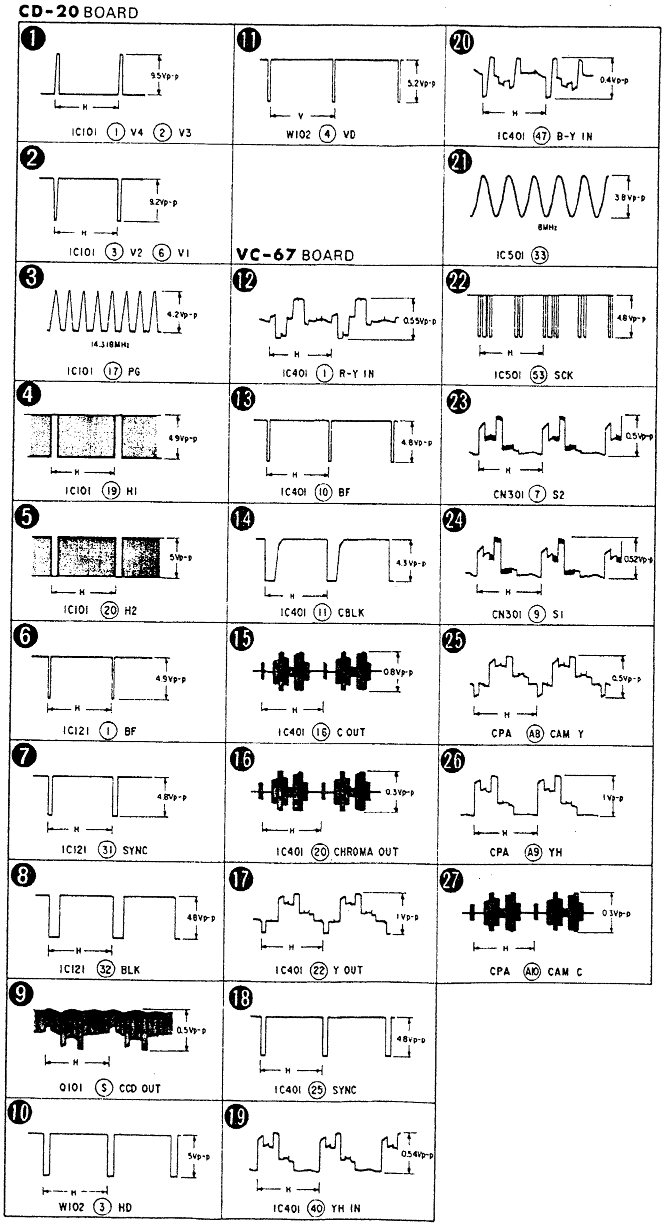
TRANSISTOR

5-53 TRANSISTOR 2SK300-3
5-35 TRANSISTOR 2SC4081-R
4 TRANSISTOR XN4601
8 TRANSISTOR XN6401
9 TRANSISTOR XN6501
5-35 TRANSISTOR 2SC4081-R
2-84 TRANSISTOR XN4601
2-84 TRANSISTOR XN4601
3 TRANSISTOR 2SA1576-R
4 TRANSISTOR XN4601
2-84 TRANSISTOR XN4601
2-84 TRANSISTOR XN4601
2-84 TRANSISTOR XN4601
5 TRANSISTOR UN5212
4 TRANSISTOR XN4601

CD-20 BOARD (CONDUCTOR SIDE)

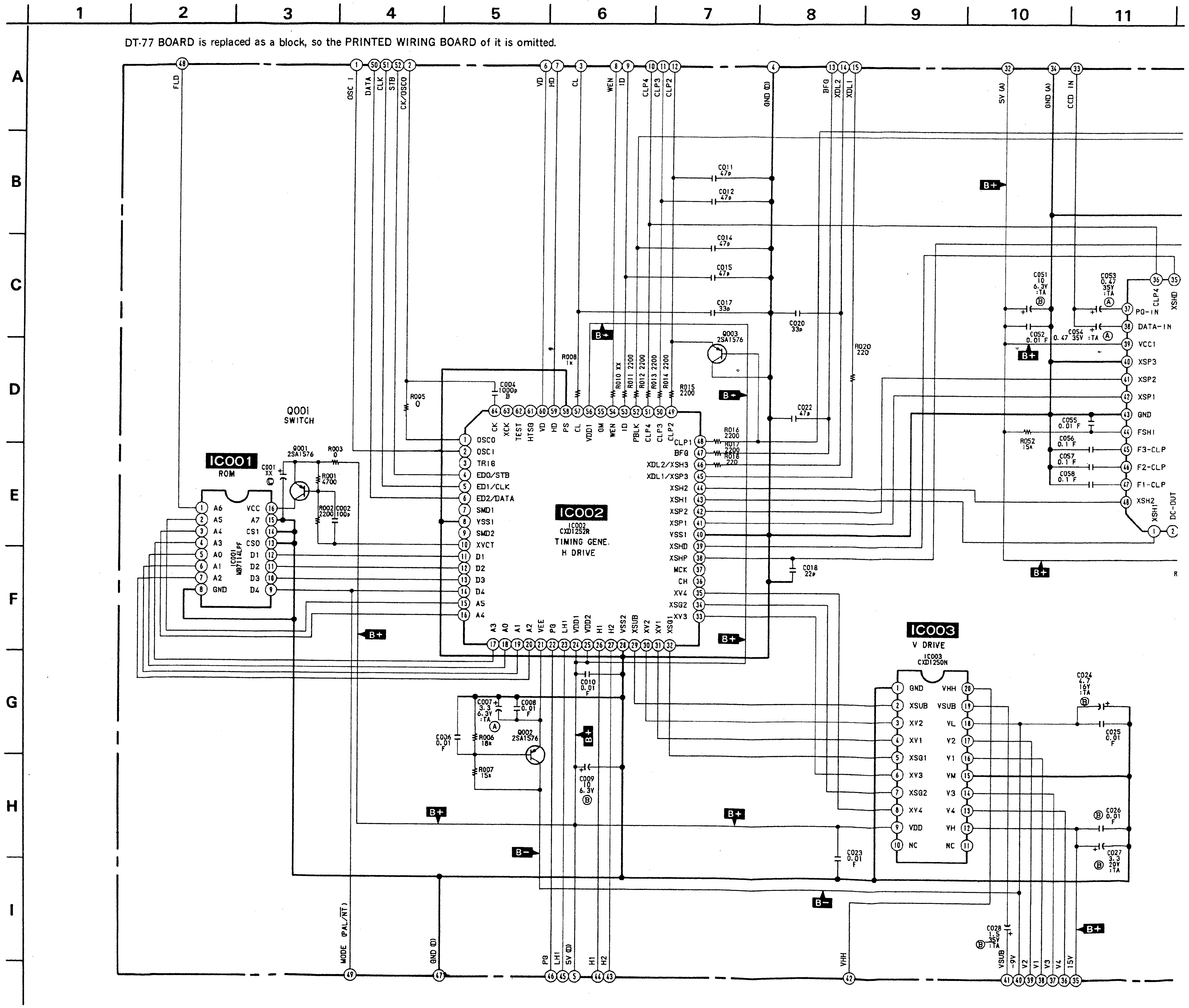


CD-20 BOARD



Be sure to always read "Precautions for replacement of CCD imager block" in page 121 when replacing the CD-20 board, complete, DT-77 board, complete and CCD imager block (IC101 on the CD-20 board and IC001 on the DT-77 board).

DT-77 (TIMING GENERATOR, CCD DRIVE), MX-12 (CAMERA MATRIX) SCHEMATIC DIAGRAMS


1
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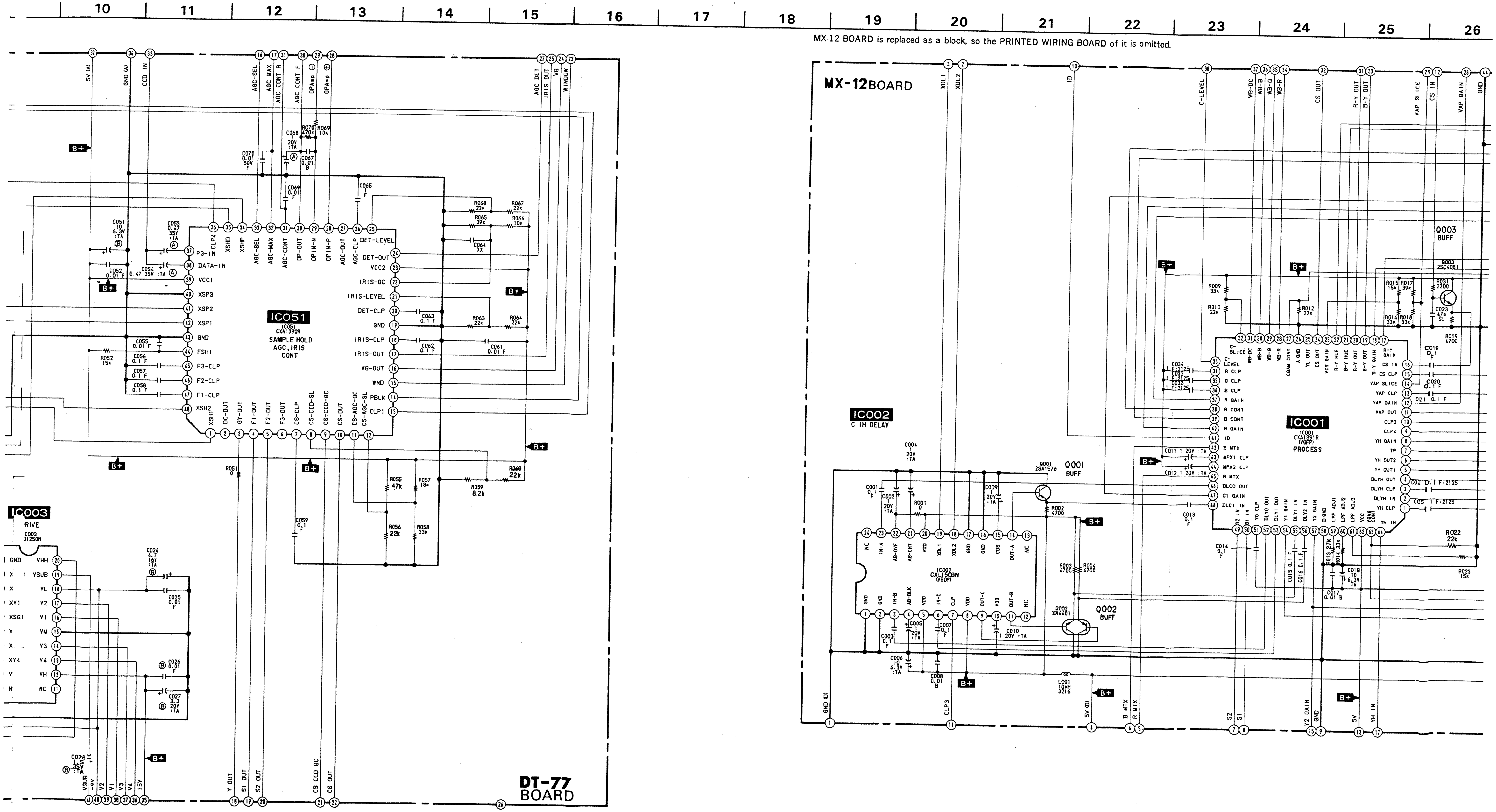
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
DT-77 BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.
IC001
ROM
IC001 MB7114LPF
A6
A5
A4
A3
A0
A1
A2
GND
VCC
A7
CS1
CS0
D1
D2
D3
D4
Q001
SWITCH
Q001 2SA1576
R003 0
R001 4700
R002 2200
C001 XX
C002 100p
IC002
IC002 CXD1252R
TIMING GENE.
H DRIVE
OSC0
OSC1
TRIG
ED0/STB
ED1/CLK
ED2/DATA
SMD1
VSS1
SMD2
XVCT
D1
D2
D3
D4
A5
A4
CK
XCK
TEST
HTSG
VD
HD
PS
CL
VDD1
GM
WEN
ID
PBLK
CLP4
CLP3
CLP2
CLP1
BFG
XDL2/XSH3
XDL1/XSP3
XSH2
XSH1
XSP2
XSP1
VSS1
XSHD
XSHP
MCK
CH
XV4
XSG2
XV3
A3
A2
A1
A0
VEE
PG
LH1
VDD2
H1
H2
VSS2
XSUB
XV2
XV1
XSG1
IC003
V DRIVE
IC003 CXD1250N
GND
XSUB
XV2
XV1
XSG1
XV3
XSG2
XV4
VDD
NC
VHH
VSUB
VL
V2
V1
VM
V3
V4
VH
NC
Q002 2SA1576
Q003 2SA1576
R005 0
R006 18k
R007 15k
R008 1k
R010 XX
R011 2200
R012 2200
R013 2200
R014 2200
R015 2200
R016 2200
R017 2200
R018 220
R020 220
R052 15k
C004 1000p
C006 0.01 F
C007 3.3 6.3V :TA
C008 0.01 F
C009 10 6.3V
C010 0.01 F
C011 47p
C012 47p
C014 47p
C015 47p
C017 33p
C018 22p
C020 33p
C022 47p
C023 0.01 F
C024 4.7 16V :TA
C025 0.01 F
C026 0.01 F
C027 3.3 20V :TA
C028 1.5 35V :TA
C051 10 6.3V :TA
C052 0.01 F
C053 0.47 35V :TA
C054 0.47 35V :TA
C055 0.01 F
C056 0.1 F
C057 0.1 F
C058 0.1 F
FLD
OSC I
DATA
CLK
STB
CK/OSCO
VD
HD
CL
WEN
ID
CLP4
CLP3
CLP2
GND (D)
BFG
XDL2
XDL1
5V (A)
GND (A)
CCD IN
PG-IN
DATA-IN
VCC1
XSP3
XSP2
XSP1
GND
FSH1
F3-CLP
F2-CLP
F1-CLP
XSH2
XSH1
DC-OUT
CLP4
XSHD
MODE (PAL/NT)
GND (D)
PG
LH1
5V (D)
H1
H2
VHH
VSUB
-9V
V2
V1
V3
V4
15V
B+
B-

MX-12 BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.


10
11
12
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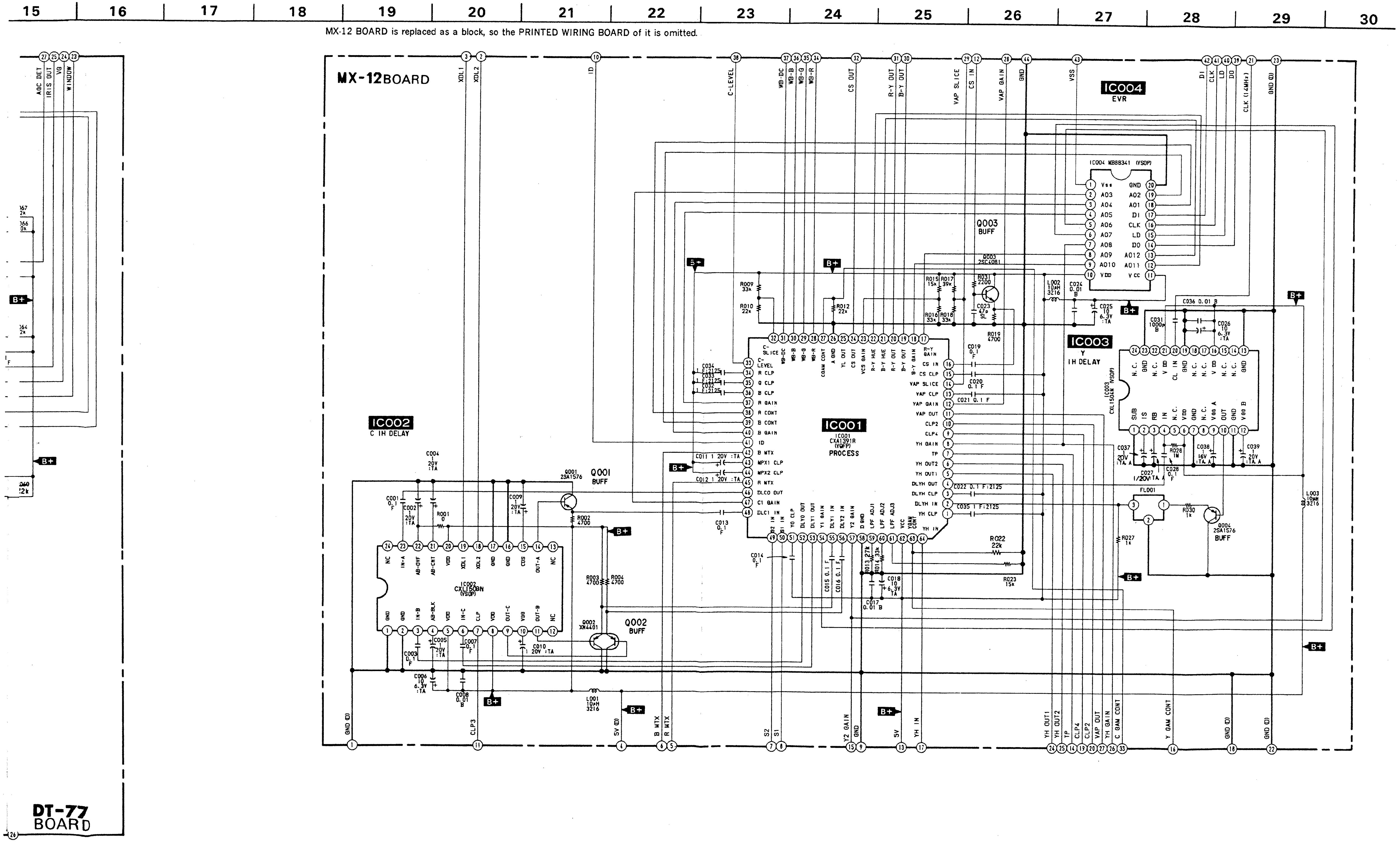
16
17
18
19
20
21
22
23
24
25
26
IC051
IC051
CXA1390R
SAMPLE HOLD
AGC, IRIS
CONT
IC003
DRIVE
DT-77
BOARD
MX-12BOARD
IC002
C 1H DELAY
IC002
CXL1508N
(VSOP)
IC001
IC001
CXA1391R
(VQFP)
PROCESS
Q001
BUFF
Q002
BUFF
Q003
BUFF
B+
5V (A)
GND (A)
CCD IN
AGC-SEL
AGC MAX
AGC CONT R
AGC CONT F
OPAmp ⊖
OPAmp ⊕
AGC DET
IRIS OUT
VG
WINDOW
Y OUT
S1 OUT
S2 OUT
CS CCD GC
CS OUT
XDL1
XDL2
ID
C-LEVEL
WB-DC
WB-B
WB-G
WB-R
CS OUT
R-Y OUT
B-Y OUT
VAP SLICE
CS IN
VAP GAIN
GND
GND (D)
CLP3
5V (D)
B MTX
R MTX
S2
S1
Y2 GAIN
GND
5V
YH IN

MX-12 BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.


15
16
17
18
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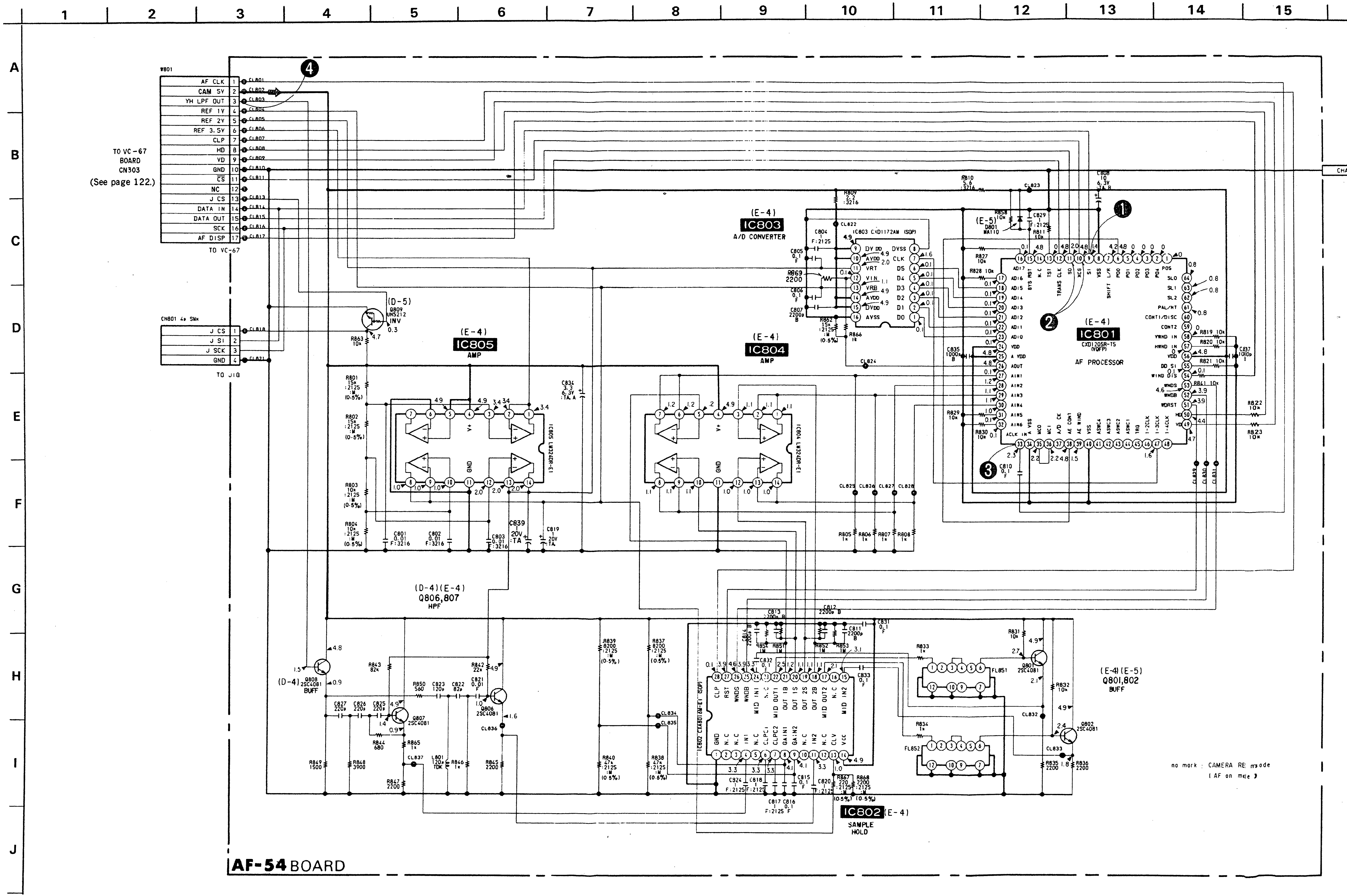
21
22
23
24
25
26
27
28
29
30
MX-12BOARD
DT-77 BOARD
IC001
CXA1391R (VQFP)
PROCESS
IC002
C 1H DELAY
CXL1508N (VSOP)
IC003
Y 1H DELAY
CXL1504M (VSOP)
IC004
EVR
IC004 MB88341 (VSOP)
Q001
BUFF
2SA1576
Q002
BUFF
XN4401
Q003
BUFF
2SC4081
Q004
2SA1576
BUFF
FL001
L001 10μH 3216
L002 10μH 3216
L003 10μH 3216
B+
ABC DET
IRIS OUT
VG
WINDOW
XDL1
XDL2
ID
C-LEVEL
WB-DC
WB-B
WB-G
WB-R
CS OUT
R-Y OUT
B-Y OUT
VAP SLICE
CS IN
VAP GAIN
GND
VSS
DI
CLK
LD
DO
CLK (14MHz)
GND (D)
GND (D)
CLP3
5V (D)
B MTX
R MTX
S2
S1
Y2 GAIN
GND
5V
YH IN
YH OUT1
YH OUT2
TP
CLP4
CLP2
VAP OUT
YH GAIN
C GAM CONT
Y GAM CONT
GND (D)
GND (D)

AF-54 (AUTO FOCUS) SCHEMATIC DIAGRAM
—Ref. No. AF-54 BOARD: 3000 series—


1
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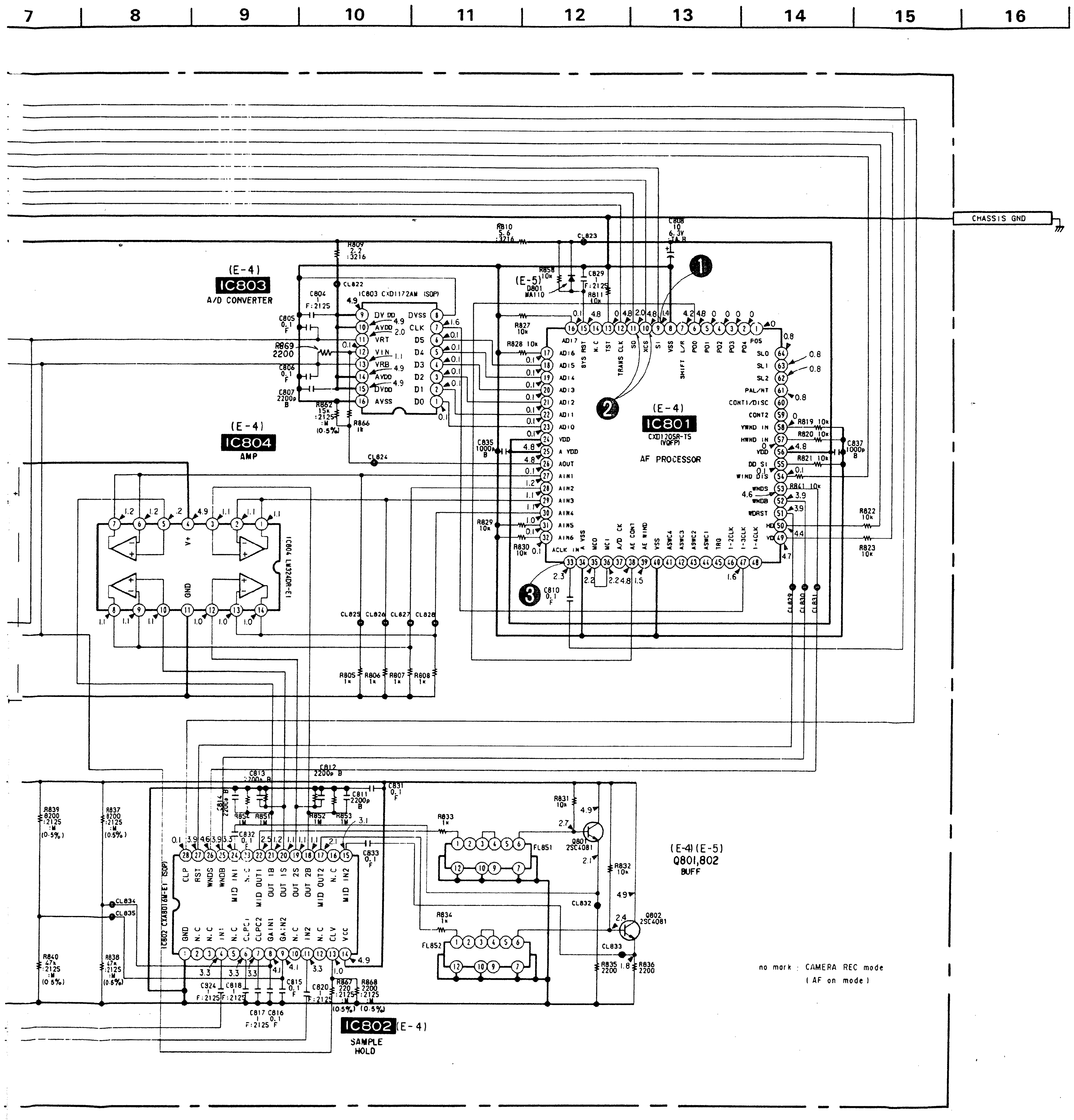
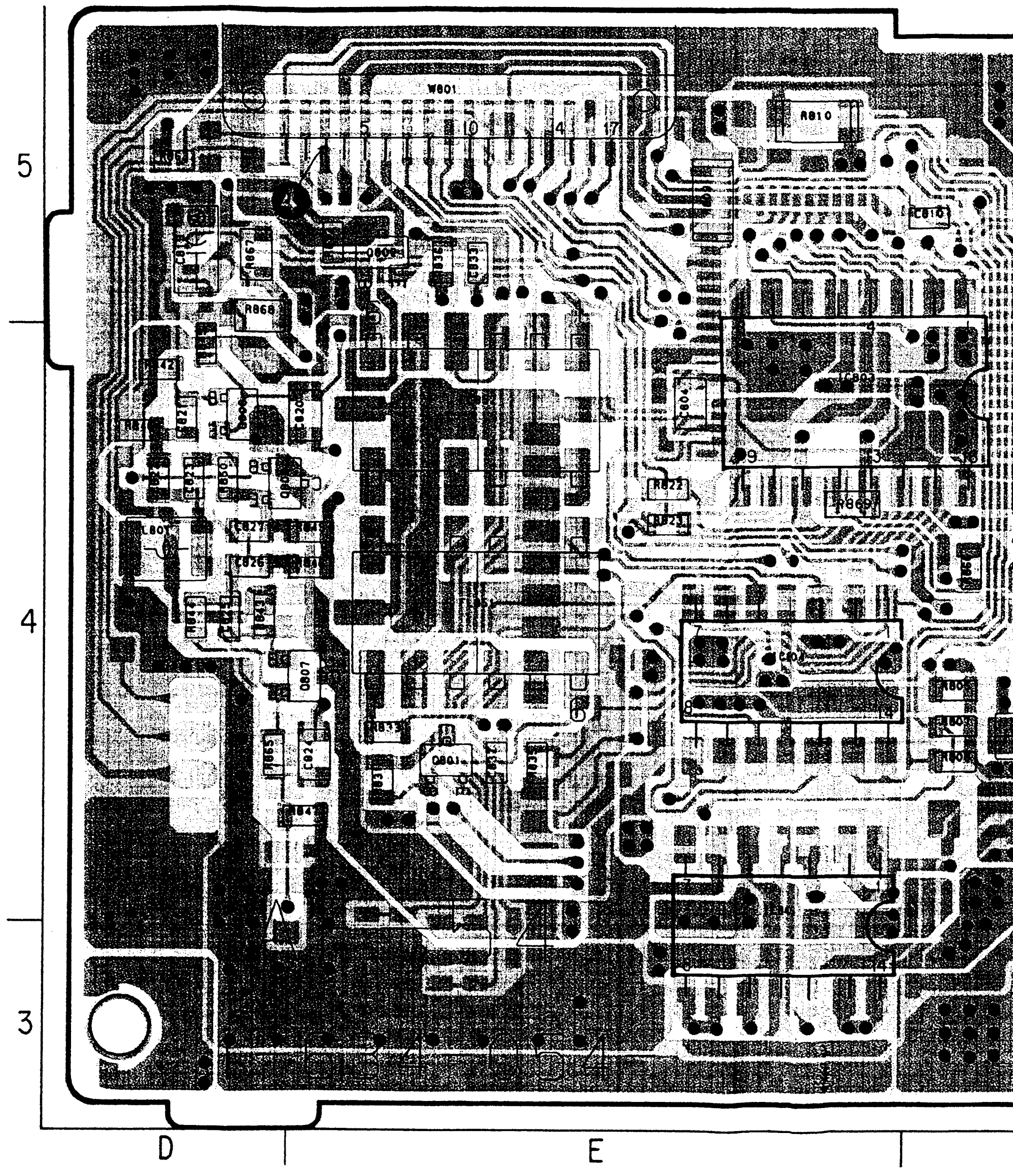
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
W801
AF CLK
CAM 5V
YH LPF OUT
REF 1V
REF 2V
REF 3.5V
CLP
HD
VD
GND
CS
NC
J CS
DATA IN
DATA OUT
SCK
AF DISP
TO VC-67 BOARD CN303 (See page 122.)
TO VC-67
CN801 4P SW
J CS
J SI
J SCK
GND
TO JIG
(D-5) Q809 UN5212 INV
(E-4) IC805 AMP
IC805 LM324DR-E1
(E-4) IC804 AMP
IC804 LM324DR-E1
(E-4) IC803 A/D CONVERTER
IC803 CXD1172AM (SOP)
(E-4) IC801 CXD1205R-TS (VQFP) AF PROCESSOR
(E-5) D801 MA110
(D-4)(E-4) Q806,807 HPF
(D-4) Q808 2SC4081 BUFF
Q807 2SC4081
Q806 2SC4081
IC802 CXA801AM-E1 (SOP)
IC802 (E-4) SAMPLE HOLD
FL851
FL852
(E-4)(E-5) Q801,802 BUFF
Q801 2SC4081
Q802 2SC4081
no mark : CAMERA REC mode
(AF on mode)
AF-54 BOARD


7
8
9
10
11
12
13
14
15
16
CHASSIS GND
(E-4)
IC803
A/D CONVERTER
IC803 CXD1172AM (SOP)
DVDD
AVDD
VRT
VIN
VRB
AVDD
DVDD
AVSS
DVSS
CLK
D5
D4
D3
D2
D1
D0
R869 2200
R862 15k
R866 1k
(E-5)
D801 MA110
R810 5.6
R809 2.2
R858 10k
C829
R811 10k
C808 10 6.3V
CL823
CL822
CL824
(E-4)
IC801
CXD1205R-1S (VQFP)
AF PROCESSOR
(E-4)
IC804
AMP
IC804 LM324DR-E1
V+
GND
R827 10k
R828 10k
R829 10k
R830 10k
C835 1000p
C837 1000p
C810 0.1
R819 10k
R820 10k
R821 10k
R841 10k
R822 10k
R823 10k
CL825
CL826
CL827
CL828
CL829
CL830
CL831
R805 1k
R806 1k
R807 1k
R808 1k
C812 2200p
C813 2200p
C811 2200p
C831 0.1
C832 0.1
C833 0.1
R851 1M
R852 1M
R853 1M
R854 1M
R839 8200
R837 8200
R840 47k
R838 47k
CL834
CL835
IC802 CXA8016M-E1 (SOP)
CLP
RST
WNDS
WNDB
MID IN1
MID OUT1
OUT 1B
OUT 1S
OUT 2S
OUT 2B
MID OUT2
N.C
MID IN2
GND
IN1
CLPC1
CLPC2
GAIN1
GAIN2
IN2
CLV
VCC
C815 0.1
C816 0.1
C817 1
C818
C820
C824
R867 220
R868 2200
IC802
(E-4)
SAMPLE HOLD
R831 10k
R832 10k
R833 1k
R834 1k
R835 2200
R836 2200
FL851
FL852
Q801 2SC4081
Q802 2SC4081
CL832
CL833
(E-4) (E-5)
Q801,802
BUFF
1
2
3

no mark : CAMERA REC mode
(AF on mode)

AF-54 (AUTO FOCUS) PRINTED WIRING BOARD
—Ref. No. AF-54 BOARD : 3000 series—

AF-54 BOARD (COMPONENT SIDE)

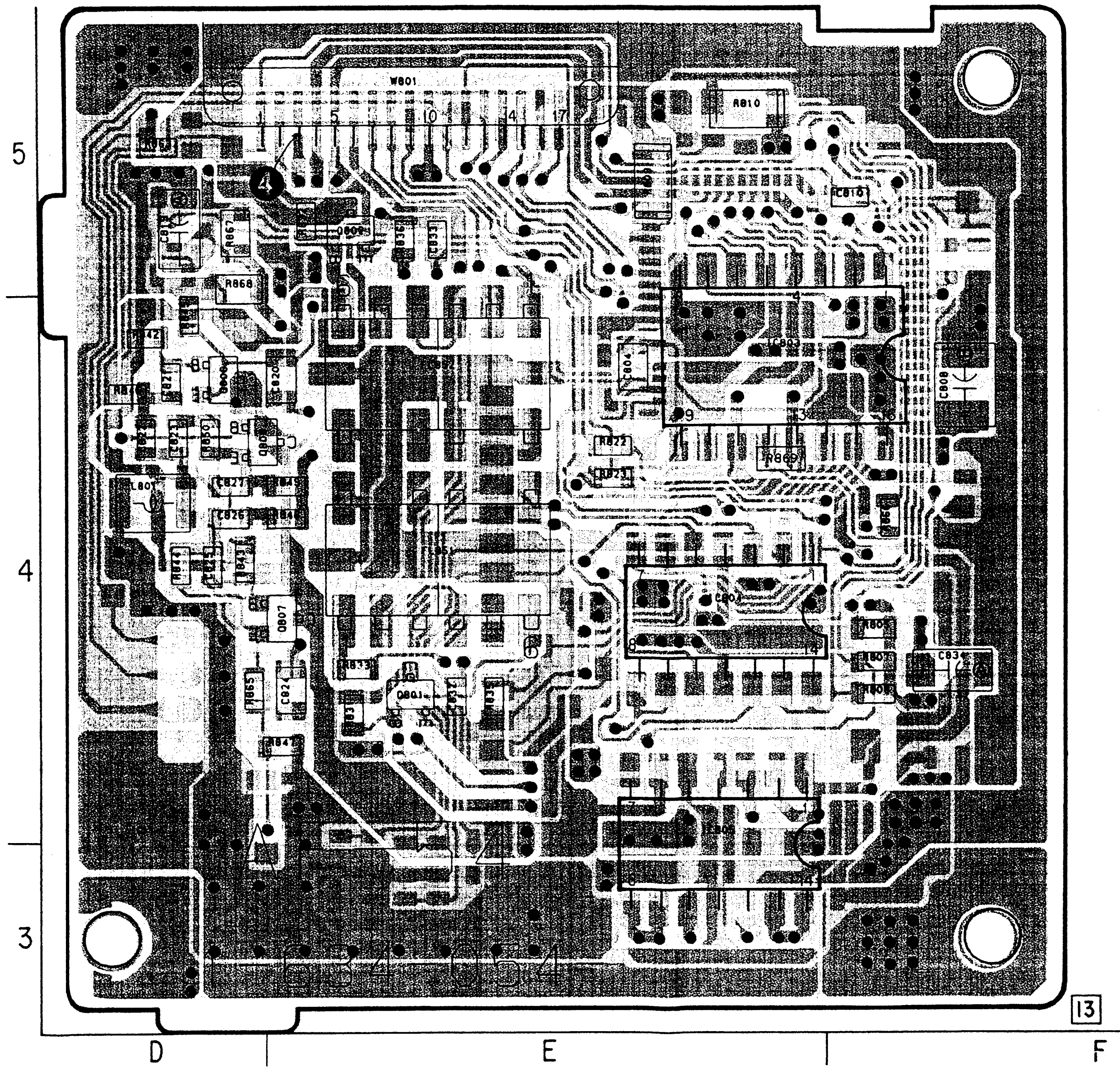

5
4
3
D
E
W801
R810
R868
IC801
Q807
Q801
C810

	DIODE	
D801	8-719-404-46	DIODE MA110
	IC	
IC801	8-752-334-68	IC CXD1205R
IC802	8-759-148-87	IC CXA8016M
IC803	8-759-329-47	IC CXD1172AM
IC804	8-759-998-96	IC LM324DR
IC805	8-759-998-96	IC LM324DR
	TRANSISTOR	
Q801	8-729-905-35	TRANSISTOR 2SC4081-R
Q802	8-729-905-35	TRANSISTOR 2SC4081-R
Q806	8-729-905-35	TRANSISTOR 2SC4081-R
Q807	8-729-905-35	TRANSISTOR 2SC4081-R
Q808	8-729-905-35	TRANSISTOR 2SC4081-R
Q809	8-729-402-45	TRANSISTOR UN5212

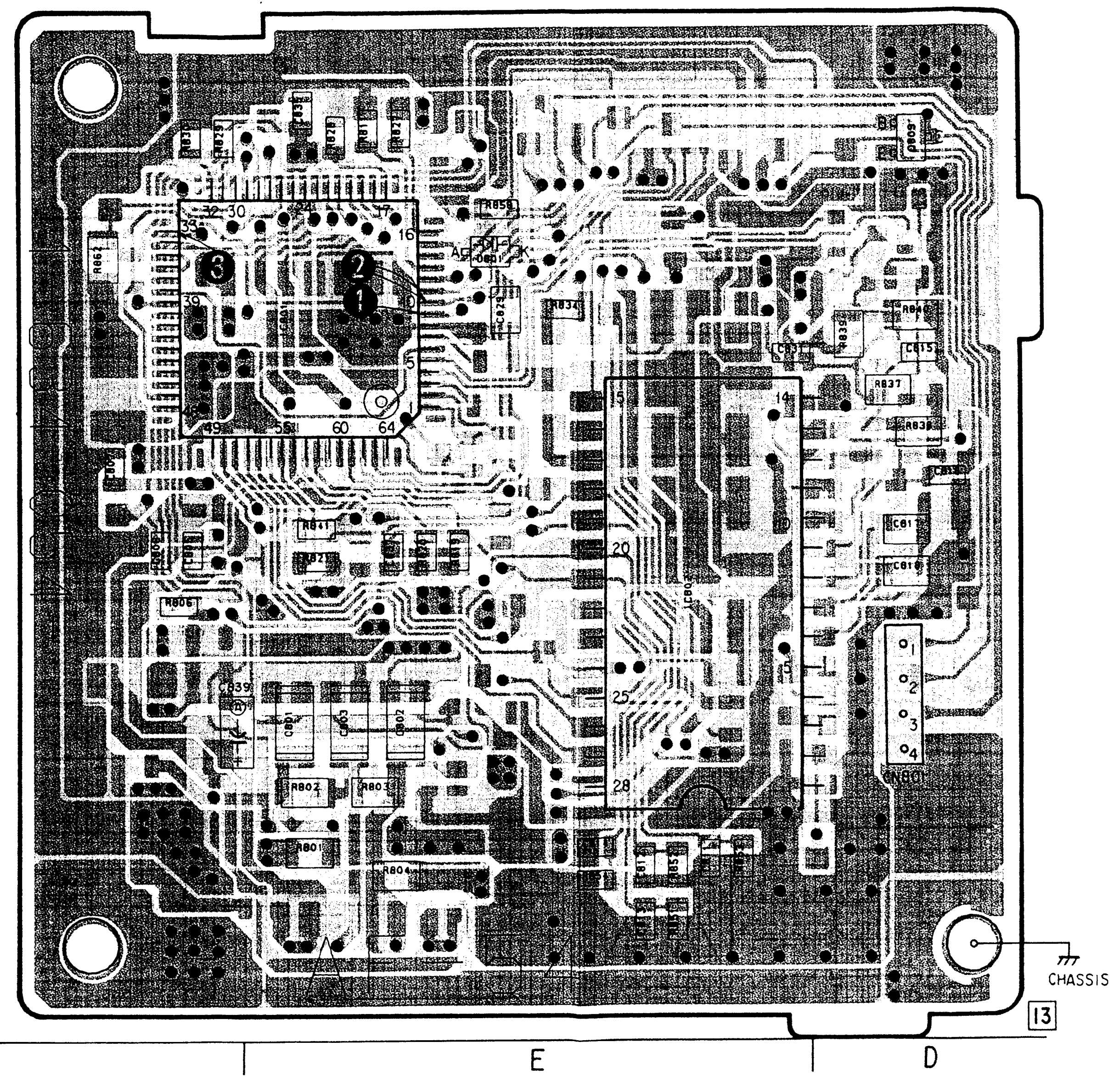
AF-54 (AUTO FOCUS) PRINTED WIRING BOARD

—Ref. No. AF-54 BOARD: 3000 series—

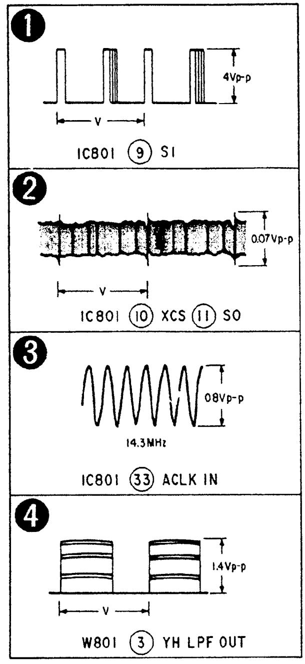
AF-54 BOARD (COMPONENT SIDE)



AF-54 BOARD (CONDUCTOR SIDE)



AF-54 BOARD



DIODE

D801	8-719-404-46	DIODE MA110

IC

IC801	8-752-334-68	IC CXD1205R
IC802	8-759-148-87	IC CXA8016M
IC803	8-759-329-47	IC CXD1172AM
IC804	8-759-998-96	IC LM324DR
IC805	8-759-998-96	IC LM324DR

TRANSISTOR

Q801	8-729-905-35	TRANSISTOR 2SC4081-R
Q802	8-729-905-35	TRANSISTOR 2SC4081-R
Q806	8-729-905-35	TRANSISTOR 2SC4081-R
Q807	8-729-905-35	TRANSISTOR 2SC4081-R
Q808	8-729-905-35	TRANSISTOR 2SC4081-R
Q809	8-729-402-45	TRANSISTOR UN5212

DIODE

D001	8-719-941-86	DIODE DAN202U
D002	8-719-404-46	DIODE MA110
D003	8-719-404-46	DIODE MA110
D101	8-719-949-46	DIODE 1T32
D102	8-719-404-46	DIODE MA110
D104	8-719-941-86	DIODE DAN202U
D201	8-719-801-41	DIODE 1SS196
D202	8-719-941-86	DIODE DAN202U
D203	8-719-941-86	DIODE DAN202U
D205	8-719-941-86	DIODE DAN202U
D208	8-719-941-86	DIODE DAN202U
D210	8-719-941-86	DIODE DAN202U
D211	8-719-941-86	DIODE DAN202U

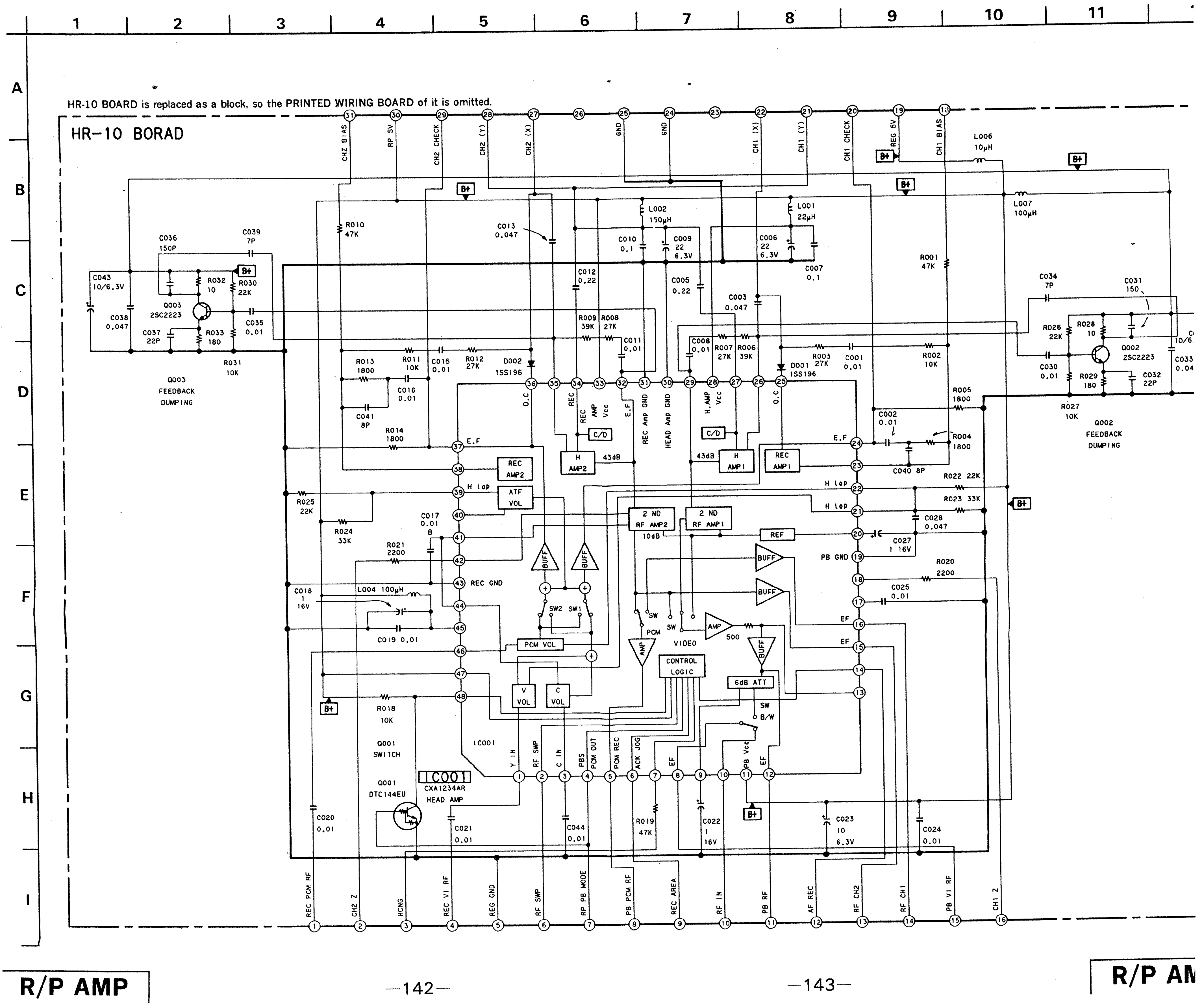
IC

IC001	8-752-814-87	IC CXP80116-659Q
IC003	8-759-998-98	IC LM358DR
IC004	8-759-148-05	IC CXA8010M
IC005	8-759-805-06	IC CXA1127M
IC006	8-759-990-55	IC CXA8006M
IC007	8-759-008-95	IC MC14028BF
IC008	8-759-720-05	IC BR93C46F
IC101	8-759-970-80	IC MB673198U
IC102	8-759-148-62	IC UPD6451GT-630
IC103	8-759-420-01	IC AN2512S
IC104	8-759-234-20	IC TC7S08F
IC150	8-759-209-53	IC CXA1204Q
IC201	8-759-012-00	IC MC10H116M
IC202	8-759-998-92	IC LM393DR
IC204	8-759-998-32	IC CXD-2107M

TRANSISTOR

Q001	8-729-907-00	TRANSISTOR DTC114EU
Q002	8-729-905-12	TRANSISTOR DTA144EU
Q003	8-729-905-18	TRANSISTOR DTC144EU
Q004	8-729-820-46	TRANSISTOR 2SB1202FAT
Q005	8-729-905-35	TRANSISTOR 2SC4081-R
Q007	8-729-905-35	TRANSISTOR 2SC4081-R
Q008	8-729-905-35	TRANSISTOR 2SC4081-R
Q009	8-729-905-35	TRANSISTOR 2SC4081-R
Q010	8-729-907-03	TRANSISTOR FMG5
Q011	8-729-905-18	TRANSISTOR DTC144EU
Q012	8-729-905-18	TRANSISTOR DTC144EU
Q013	8-729-905-18	TRANSISTOR DTC144EU
Q014	8-729-822-48	TRANSISTOR FC101
Q015	8-729-905-35	TRANSISTOR 2SC4081-R
Q016	8-729-905-23	TRANSISTOR 2SA1576-R
Q017	8-729-907-03	TRANSISTOR FMG5
Q018	8-729-905-18	TRANSISTOR DTC144EU
Q150	8-729-905-23	TRANSISTOR 2SA1576-R
Q152	8-729-905-35	TRANSISTOR 2SC4081-R
Q153	8-729-905-23	TRANSISTOR 2SA1576-R
Q201	8-729-905-35	TRANSISTOR 2SC4081-R
Q202	8-729-905-35	TRANSISTOR 2SC4081-R
Q203	8-729-905-35	TRANSISTOR 2SC4081-R
Q208	8-729-216-22	TRANSISTOR 2SA1162
Q209	8-729-905-18	TRANSISTOR DTC144EU
Q213	8-729-216-22	TRANSISTOR 2SA1162
Q214	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q215	8-729-216-22	TRANSISTOR 2SA1162
Q217	8-729-102-07	TRANSISTOR 2SC2223-F13
Q218	8-729-905-35	TRANSISTOR 2SC4081-R
Q222	8-729-905-18	TRANSISTOR DTC144EU
Q223	8-729-905-35	TRANSISTOR 2SC4081-R
Q224	8-729-904-07	TRANSISTOR FMG2
Q225	8-729-905-12	TRANSISTOR DTA144EU
Q227	8-729-905-35	TRANSISTOR 2SC4081-R
Q229	8-729-162-44	TRANSISTOR 2SB624-BV4
Q230	8-729-162-44	TRANSISTOR 2SB624-BV4
Q231	8-729-905-18	TRANSISTOR DTC144EU
Q232	8-729-905-18	TRANSISTOR DTC144EU
Q238	8-729-117-31	TRANSISTOR 2SC4177-L5
Q239	8-729-905-18	TRANSISTOR DTC144EU
Q240	8-729-905-18	TRANSISTOR DTC144EU
Q242	8-729-117-31	TRANSISTOR 2SC4177-L5
Q243	8-729-905-18	TRANSISTOR DTC144EU
Q244	8-729-140-63	TRANSISTOR 2SA1611-M5M6
Q245	8-729-117-31	TRANSISTOR 2SC4177-L5
Q247	8-729-905-35	TRANSISTOR 2SC4081-R
Q248	8-729-903-10	TRANSISTOR FMW1
Q249	8-729-905-18	TRANSIS
Q250	8-729-905-12	TRANSIS
Q251	8-729-905-35	TRANSIS
Q252	8-729-102-07	TRANSIS
Q254	8-729-905-35	TRANSIS
Q255	8-729-904-07	TRANSIS
Q256	8-729-905-12	TRANSIS
Q257	8-729-905-18	TRANSIS
Q258	8-729-903-10	TRANSIS
Q259	8-729-905-35	TRANSIS
Q260	8-729-905-35	TRANSIS
Q261	8-729-905-23	TRANSIS
Q262	8-729-905-23	TRANSIS
Q263	8-729-907-26	TRANSIS
Q265	8-729-905-35	TRANSIS
Q266	8-729-905-35	TRANSIS
Q267	8-729-905-35	TRANSIS
Q268	8-729-905-23	TRANSIS
Q269	8-729-907-26	TRANSIS
Q272	8-729-922-94	TRANSIS
Q273	8-729-162-44	TRANSIS
Q277	8-729-905-35	TRANSIS
Q278	8-729-905-35	TRANSIS
Q279	8-729-905-18	TRANSIS
Q280	8-729-905-35	TRANSIS
Q282	8-729-102-07	TRANSIS
Q283	8-729-102-07	TRANSIS
Q284	8-729-905-35	TRANSIS
Q285	8-729-102-07	TRANSIS
Q286	8-729-105-68	TRANSIS
Q287	8-729-924-46	TRANSIS
Q288	8-729-905-12	TRANSIS
Q289	8-729-102-07	TRANSIS
Q290	8-729-102-07	TRANSIS
Q291	8-729-907-26	TRANSIS
Q294	8-729-905-18	TRANSIS

HR-10 (REC/PB AMP) SCHEMATIC DIAGRAM


HR-10 BOARD is replaced as a block, so the PRINTED WIRING BOARD of it is omitted.
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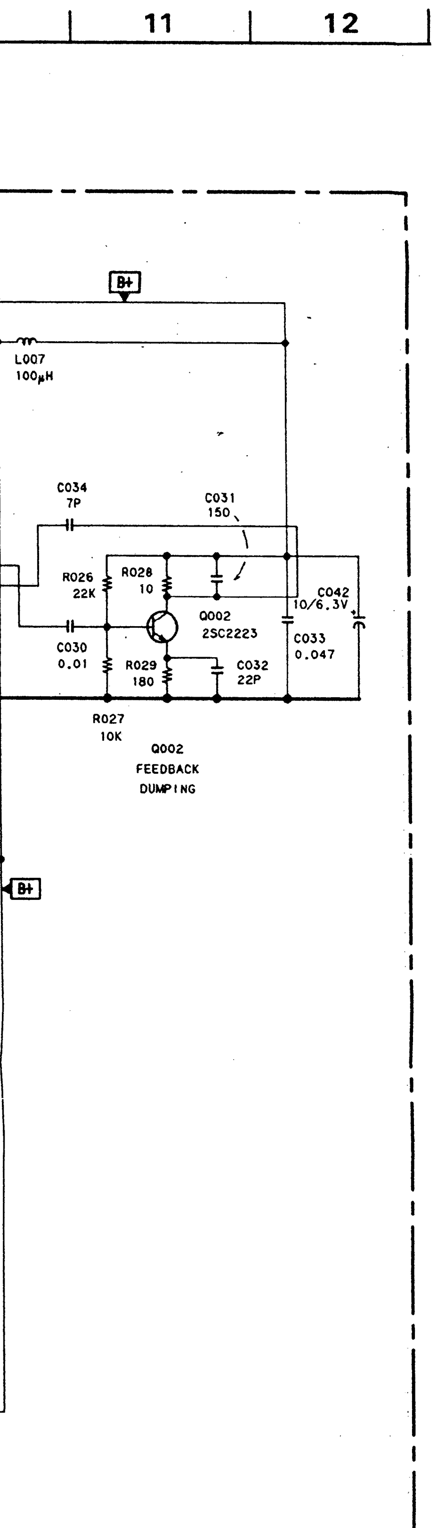
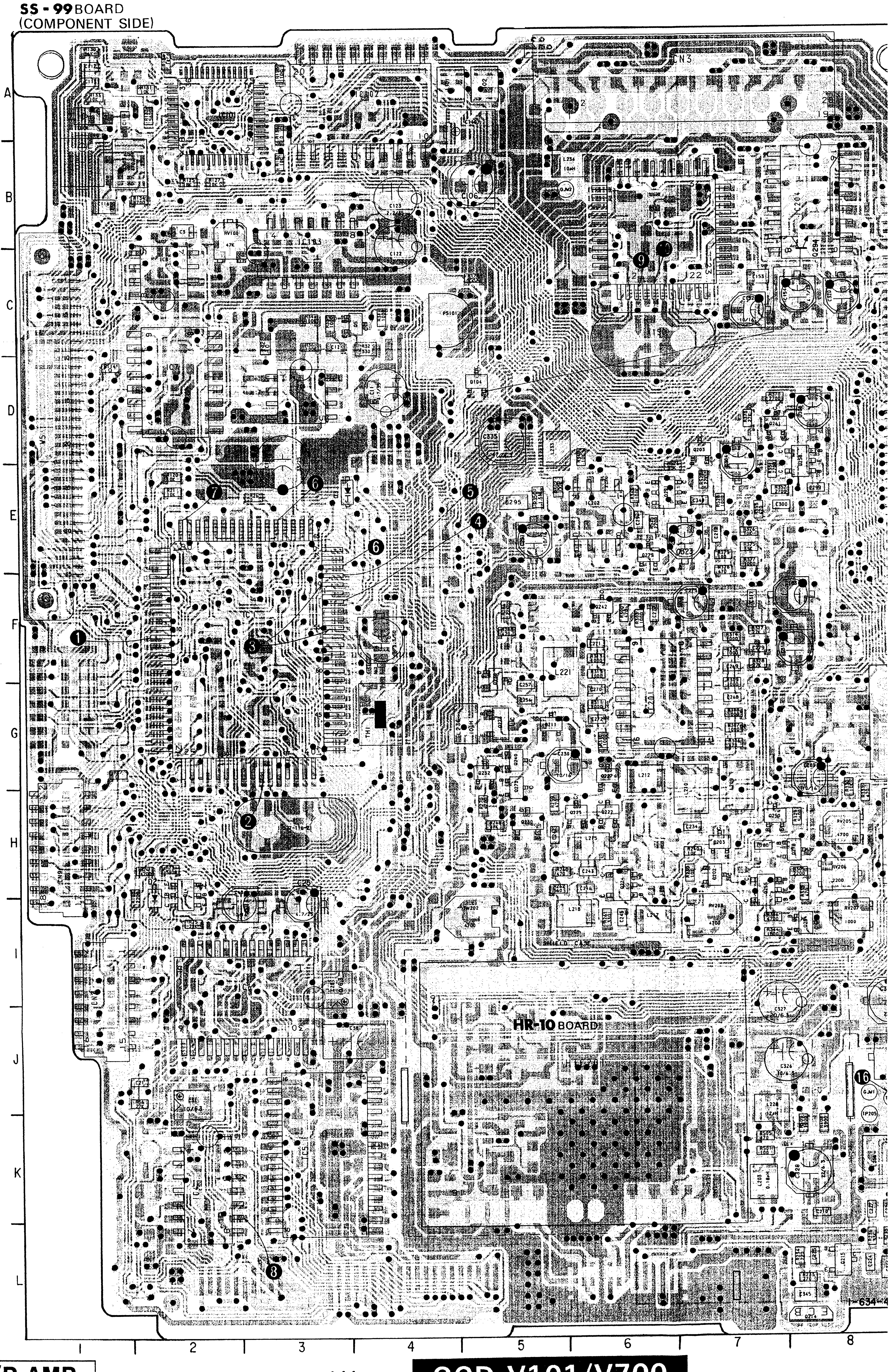
11
A
B
C
D
E
F
G
H
I
HR-10 BORAD
CH2 BIAS
RP 5V
CH2 CHECK
CH2 (Y)
CH2 (X)
GND
CH1 (X)
CH1 (Y)
CH1 CHECK
REG 5V
CH1 BIAS
L006 10μH
L007 100μH
L002 150μH
L001 22μH
B+
C036 150P
C039 7P
C043 10/6.3V
C038 0.047
Q003 2SC2223
R032 10
R030 22K
C037 22P
R033 180
C035 0.01
R031 10K
Q003 FEEDBACK DUMPING
R010 47K
C013 0.047
C010 0.1
C009 22 6.3V
C006 22 6.3V
C007 0.1
C012 0.22
C005 0.22
C003 0.047
R001 47K
C034 7P
C031 150
R026 22K
R028 10
Q002 2SC2223
C030 0.01
R029 180
C032 22P
C033 0.04
R027 10K
Q002 FEEDBACK DUMPING
R009 39K
R008 27K
C011 0.01
C008 0.01
R007 27K
R006 39K
R013 1800
R011 10K
C015 0.01
R012 27K
D002 1SS196
R003 27K
D001 1SS196
C001 0.01
R002 10K
R005 1800
C016 0.01
C041 8P
R014 1800
E.F
O.C
REC AMP Vcc
REC Amp GND
HEAD Amp GND
H.AMP Vcc
C/D
REC AMP2
H AMP2
43dB
H AMP1
REC AMP1
C002 0.01
R004 1800
C040 8P
H lop
ATF VOL
2 ND RF AMP2
2 ND RF AMP1
10dB
REF
R022 22K
R023 33K
C028 0.047
C027 1 16V
R025 22K
R024 33K
C017 0.01 B
R021 2200
BUFF
PB GND
R020 2200
C025 0.01
C018 1 16V
L004 100μH
REC GND
SW2
SW1
SW
PCM
VIDEO
AMP
500
EF
C019 0.01
PCM VOL
CONTROL LOGIC
6dB ATT
SW B/W
V VOL
C VOL
R018 10K
IC001
Q001 SWITCH
Q001 DTC144EU
IC001 CXA1234AR HEAD AMP
Y IN
RF SWP
C IN
PBS PCM OUT
PCM REC
ACK JOG
PB Vcc
C020 0.01
C021 0.01
C044 0.01
R019 47K
C022 1 16V
C023 10 6.3V
C024 0.01
REC PCM RF
CH2 Z
HCNG
REC V1 RF
REG GND
RF SWP
RP PB MODE
PB PCM RF
REC AREA
RF IN
PB RF
AF REC
RF CH2
RF CH1
PB V1 RF
CH1 Z

Q249	8-729-905-18	TRANSISTOR	DTC144EU
Q250	8-729-905-12	TRANSISTOR	DTA144EU
Q251	8-729-905-35	TRANSISTOR	2SC4081-R
Q252	8-729-102-07	TRANSISTOR	2SC2223-F13
Q254	8-729-905-35	TRANSISTOR	2SC4081-R
Q255	8-729-904-07	TRANSISTOR	FMG2
Q256	8-729-905-12	TRANSISTOR	DTA144EU
Q257	8-729-905-18	TRANSISTOR	DTC144EU
Q258	8-729-903-10	TRANSISTOR	FMW1
Q259	8-729-905-35	TRANSISTOR	2SC4081-R
Q260	8-729-905-35	TRANSISTOR	2SC4081-R
Q261	8-729-905-23	TRANSISTOR	2SA1576-R
Q262	8-729-905-23	TRANSISTOR	2SA1576-R
Q263	8-729-907-26	TRANSISTOR	IMX1
Q265	8-729-905-35	TRANSISTOR	2SC4081-R
Q266	8-729-905-35	TRANSISTOR	2SC4081-R
Q267	8-729-905-35	TRANSISTOR	2SC4081-R
Q268	8-729-905-23	TRANSISTOR	2SA1576-R
Q269	8-729-907-26	TRANSISTOR	IMX1
Q272	8-729-922-94	TRANSISTOR	DTC143TU
Q273	8-729-162-44	TRANSISTOR	2SB624-BV4
Q277	8-729-905-35	TRANSISTOR	2SC4081-R
Q278	8-729-905-35	TRANSISTOR	2SC4081-R
Q279	8-729-905-18	TRANSISTOR	DTC144EU
Q280	8-729-905-35	TRANSISTOR	2SC4081-R
Q282	8-729-102-07	TRANSISTOR	2SC2223-F13
Q283	8-729-102-07	TRANSISTOR	2SC2223-F13
Q284	8-729-905-35	TRANSISTOR	2SC4081-R
Q285	8-729-102-07	TRANSISTOR	2SC2223-F13
Q286	8-729-105-68	TRANSISTOR	2SC3356
Q287	8-729-924-46	TRANSISTOR	DTC124XU
Q288	8-729-905-12	TRANSISTOR	DTA144EU
Q289	8-729-102-07	TRANSISTOR	2SC2223-F13
Q290	8-729-102-07	TRANSISTOR	2SC2223-F13
Q291	8-729-907-26	TRANSISTOR	IMX1
Q294	8-729-905-18	TRANSISTOR	DTC144EU


11
12
B+
L007
100μH
C034
7P
C031
150
R026
22K
R028
10
Q002
2SC2223
C042
10/6.3V
C030
0.01
R029
180
C032
22P
C033
0.047
R027
10K
Q002
FEEDBACK
DUMPING
B+

SS-99 (SERVO, SYSTEM CONTROL, REC/PB AMP) PRINTED WIRING BOARD

—Ref. No. SS-99 BOARD : 2000 series—


SS-99 BOARD
(COMPONENT SIDE)
A
B
C
D
E
F
G
H
I
J
K
L
1
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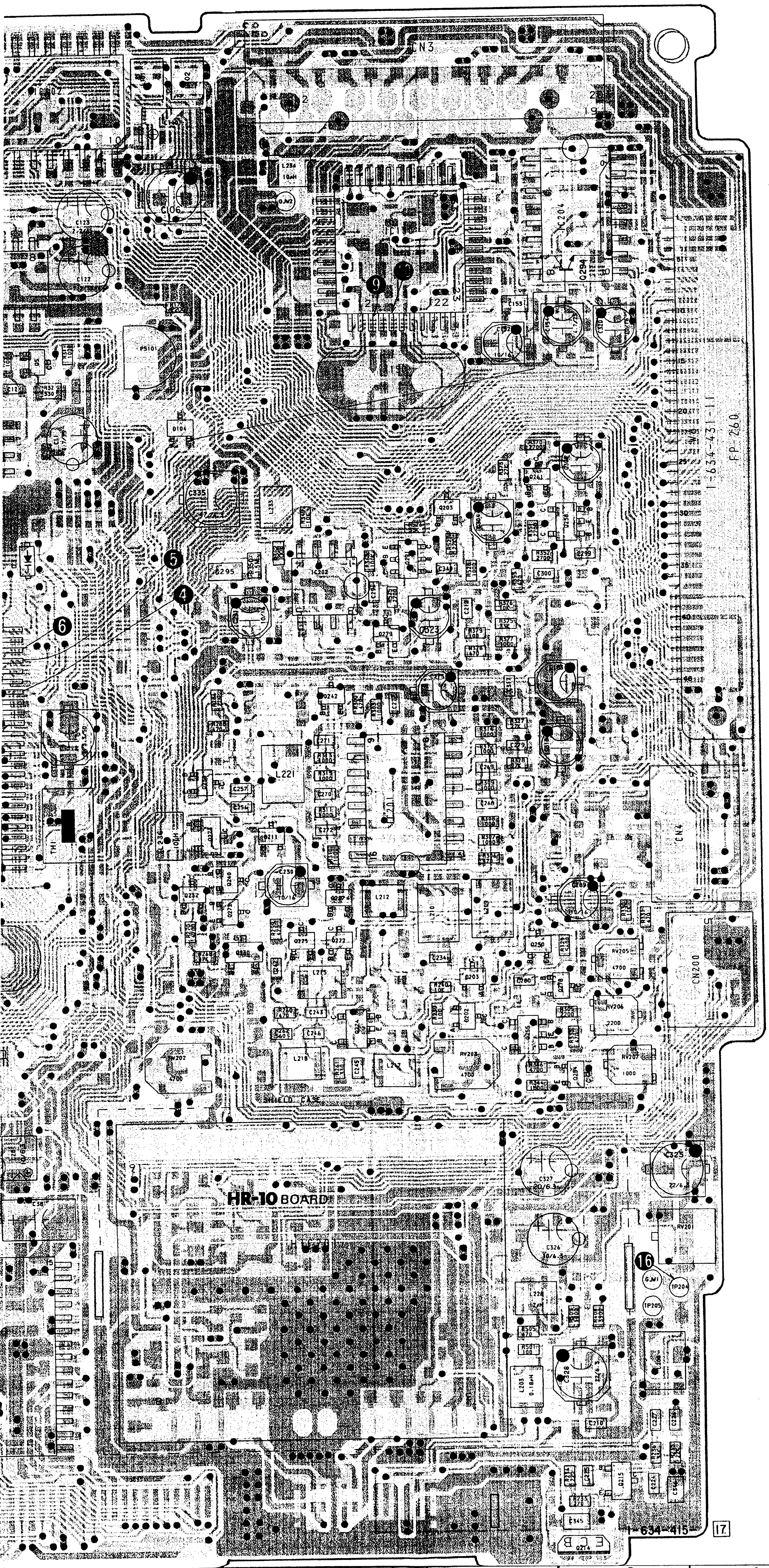
CN3
HR-10 BOARD
TH1
L221
C327
C326
10/6.3V
16

ED WIRING BOARD


CN3
FP-260
1-634-431-11
CN4
CN200
SHIELD CASE
HR-10 BOARD
1-634-415
17
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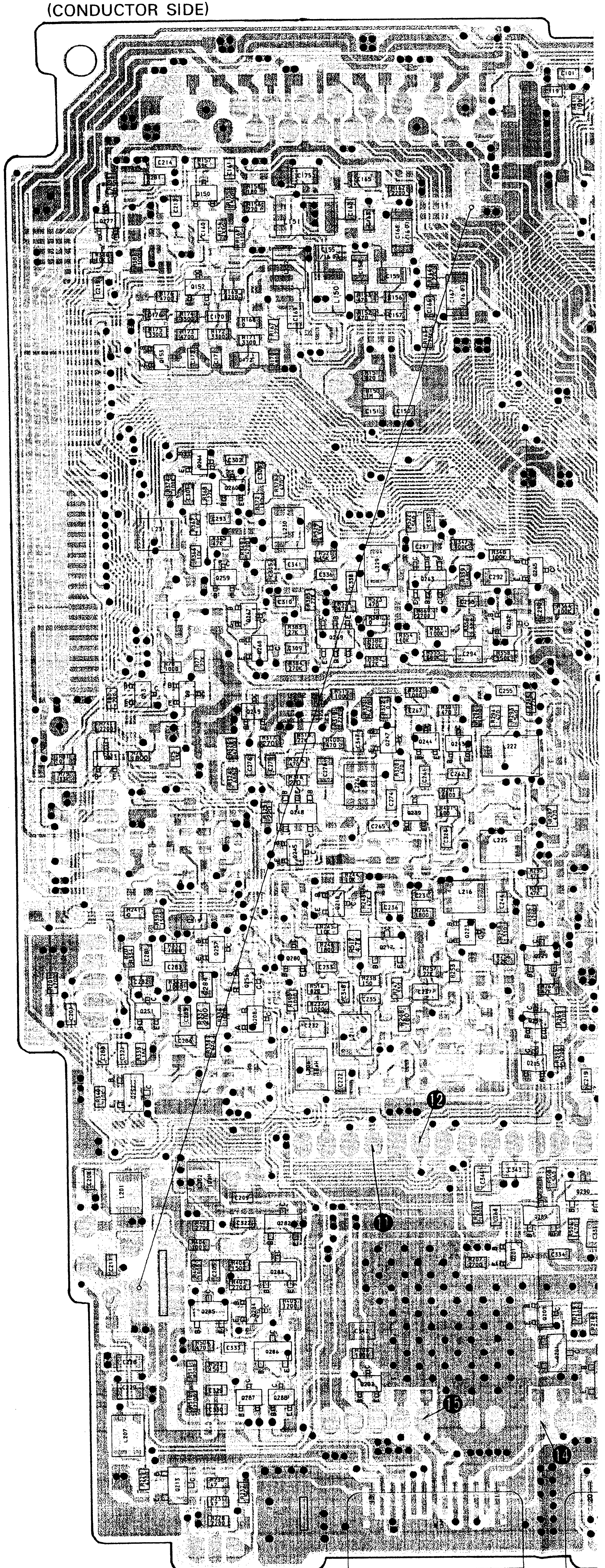
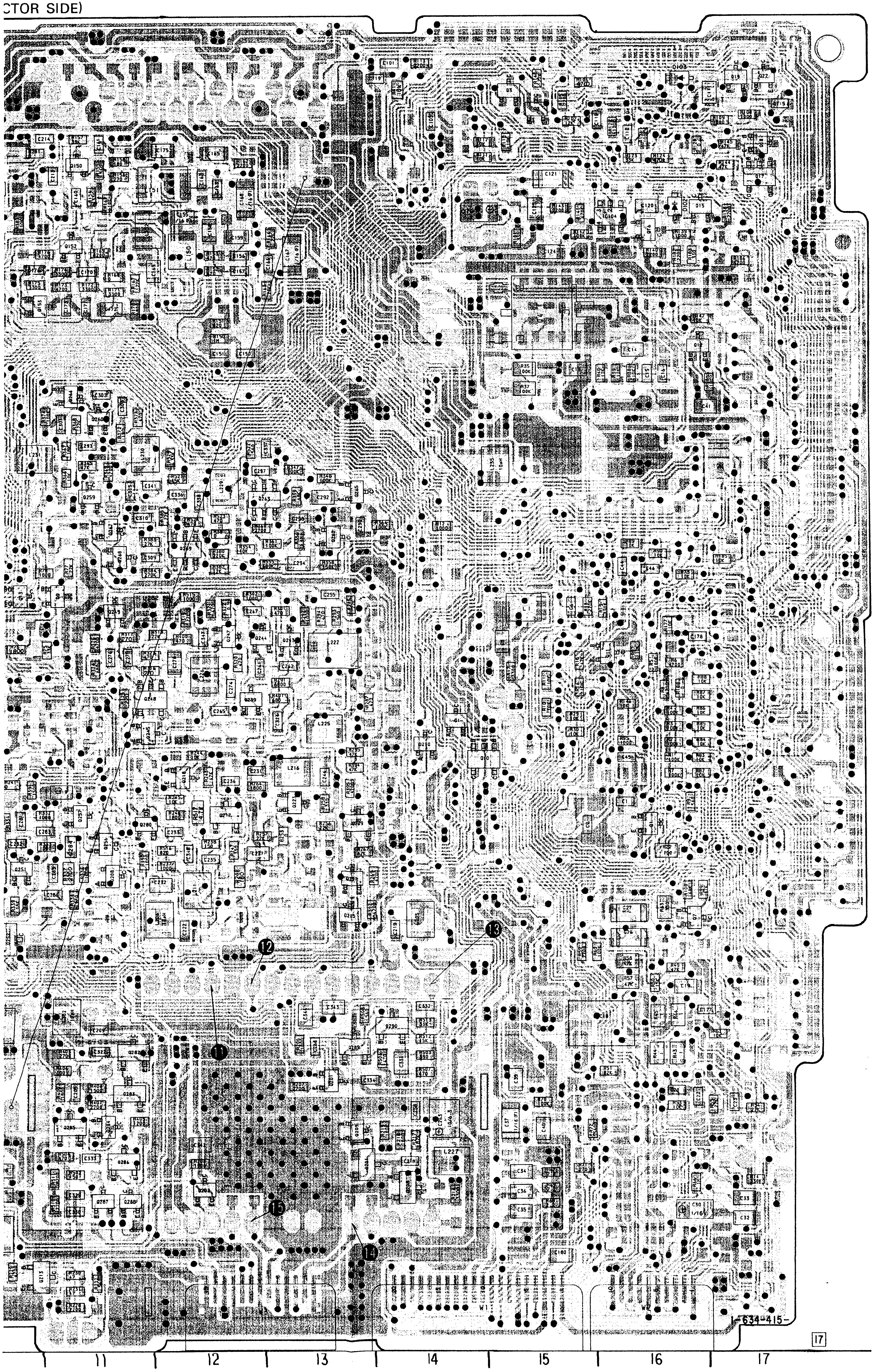
SS-99 BOARD
(CONDUCTOR SIDE)



BOARD
CTOR SIDE)



⓫
⓬
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⓮
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-634-415-
17
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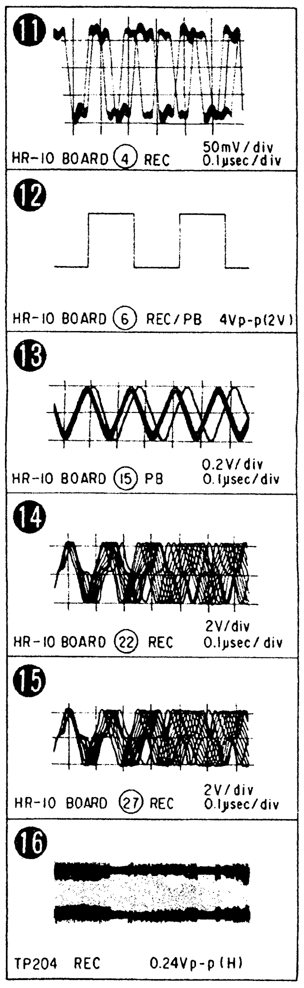
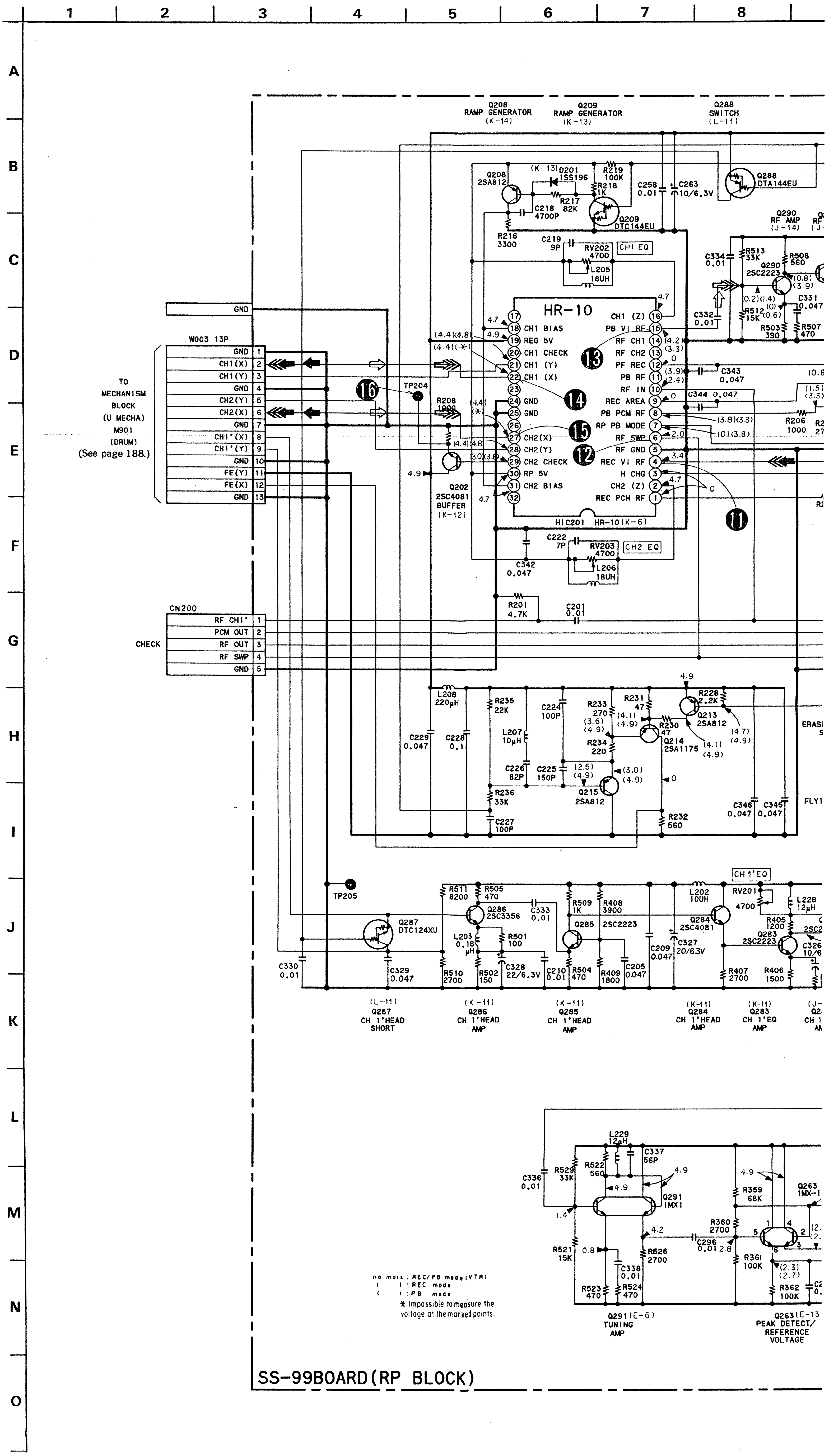
17
R/P AMP
R/P AMP

SS-99 BOARD (RP BLOCK)



SS-99 (SERVO, SYSTEM CONTROL, REC/PB AMP) SCHEMATIC DIAGRAM
—Ref. No. SS-99 BOARD : 2000 series—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A
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D
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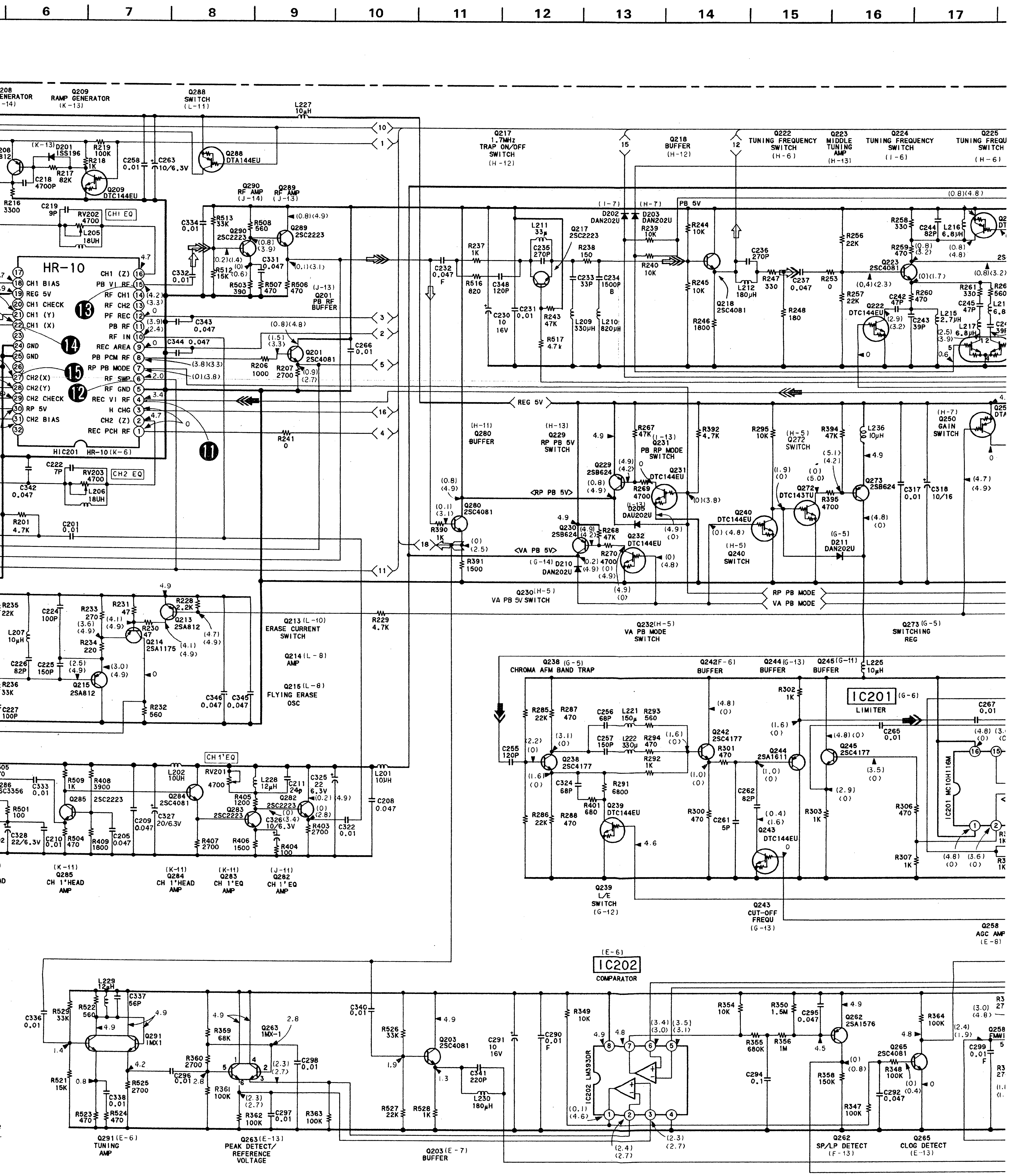
I
J
K
L
M
N
O
Q208 RAMP GENERATOR (K-14)
Q209 RAMP GENERATOR (K-13)
Q288 SWITCH (L-11)
Q208 2SA812
D201 1SS196
R219 100K
R218 1K
R217 82K
C218 4700P
Q209 DTC144EU
C258 0.01
C263 10/6.3V
Q288 DTA144EU
R216 3300
C219 9P
RV202 4700
CH1 EQ
L205 18UH
HR-10
CH1 BIAS
REG 5V
CH1 CHECK
CH1 (Y)
CH1 (X)
GND
CH2(X)
CH2(Y)
CH2 CHECK
RP 5V
CH2 BIAS
CH1 (Z)
PB VI RF
RF CH1
RF CH2
PF REC
PB RF
RF IN
REC AREA
PB PCM RF
RP PB MODE
RF SWP
RF GND
REC VI RF
H CHG
CH2 (Z)
REC PCH RF
HIC201 HR-10(K-6)
C222 7P
RV203 4700
CH2 EQ
L206 18UH
C342 0.047
R201 4.7K
C201 0.01
GND
W003 13P
CH1(X)
CH1(Y)
CH2(Y)
CH2(X)
CH1'(X)
CH1'(Y)
FE(Y)
FE(X)
TO MECHANISM BLOCK (U MECHA) M901 (DRUM) (See page 188.)
TP204
R208 1000
Q202 2SC4081 BUFFER (K-12)
CN200
RF CH1'
PCM OUT
RF OUT
RF SWP
CHECK
Q290 RF AMP (J-14)
R513 33K
R508 560
Q290 2SC2223
C334 0.01
C332 0.01
R512 15K
R503 390
R507 470
C331 0.047
C343 0.047
C344 0.047
R206 1000
L208 220μH
R235 22K
C224 100P
R233 270
R231 47
R228 2.2K
Q213 2SA812
R230 47
Q214 2SA1175
R234 220
L207 10μH
C229 0.047
C228 0.1
C226 82P
C225 150P
Q215 2SA812
R236 33K
C227 100P
R232 560
C346 0.047
C345 0.047
ERASE
FLY
TP205
Q287 DTC124XU
R511 8200
R505 470
Q286 2SC3356
C333 0.01
R509 1K
R408 3900
Q285 2SC2223
L202 10UH
CH 1'EQ
RV201 4700
L228 12μH
Q284 2SC4081
R405 1200
Q283 2SC2223
L203 0.18μH
R501 100
C330 0.01
C329 0.047
R510 2700
R502 150
C328 22/6.3V
C210 0.01
R504 470
R409 1800
C205 0.047
C209 0.047
C327 20/63V
R407 2700
R406 1500
(L-11) Q287 CH 1'HEAD SHORT
(K-11) Q286 CH 1'HEAD AMP
(K-11) Q285 CH 1'HEAD AMP
(K-11) Q284 CH 1'HEAD AMP
(K-11) Q283 CH 1'EQ AMP
L229 12μH
C337 56P
R529 33K
R522 560
C336 0.01
Q291 1MX1
R521 15K
R526 2700
C338 0.01
R523 470
R524 470
C296 0.01
R360 2700
R359 68K
R361 100K
R362 100K
Q263 1MX-1
Q291 (E-6) TUNING AMP
Q263 (E-13) PEAK DETECT/ REFERENCE VOLTAGE
no mark : REC/PB mode (VTR)
( ) : REC mode
( ) : PB mode
✱ : Impossible to measure the voltage at the marked points.
SS-99BOARD (RP BLOCK)


6
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12
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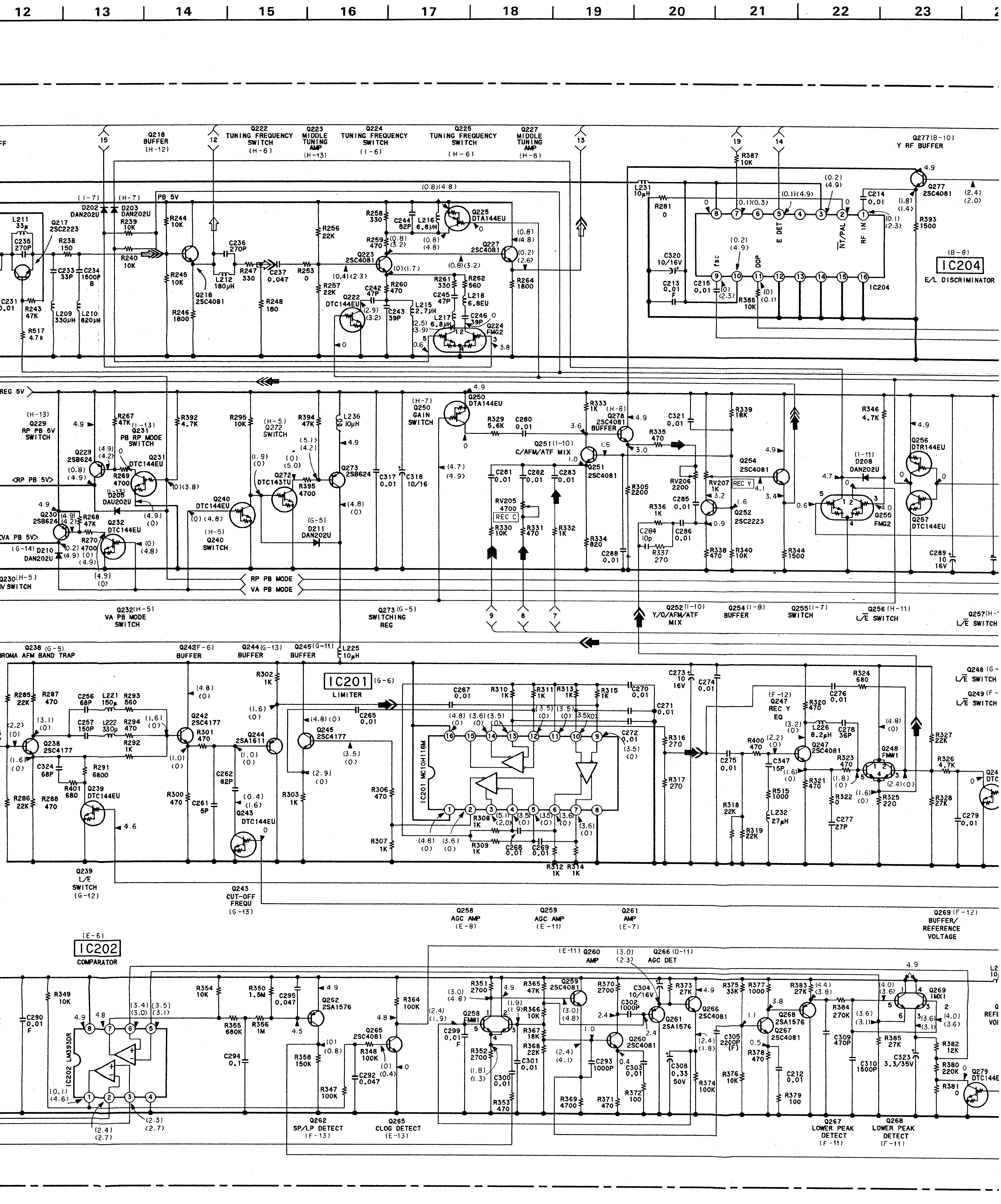
14
15
16
17
Q209 RAMP GENERATOR (K-13)
Q288 SWITCH (L-11)
Q288 DTA144EU
Q209 DTC144EU
D201 1SS196
L227 10μH
Q290 RF AMP (J-14)
Q289 RF AMP (J-13)
Q290 2SC2223
Q289 2SC2223
CH1 EQ
CH2 EQ
RV202 4700
RV203 4700
L205 18UH
L206 18UH
HR-10
HIC201 HR-10 (K-6)
CH1 BIAS
REG 5V
CH1 CHECK
CH1 (Y)
CH1 (X)
GND
CH2 (X)
CH2 (Y)
CH2 CHECK
RP 5V
CH2 BIAS
CH1 (Z)
PB VI RF
RF CH1
RF CH2
PF REC
PB RF
RF IN
REC AREA
PB PCM RF
RP PB MODE
RF SWP
RF GND
REC VI RF
H CHG
CH2 (Z)
REC PCH RF
Q201 2SC4081
Q201 PB RF BUFFER
Q217 1.7MHz TRAP ON/OFF SWITCH (H-12)
Q217 2SC2223
Q218 BUFFER (H-12)
Q218 2SC4081
D202 DAN202U
D203 DAN202U
PB 5V
Q222 TUNING FREQUENCY SWITCH (H-6)
Q223 MIDDLE TUNING AMP (H-13)
Q224 TUNING FREQUENCY SWITCH (I-6)
Q225 TUNING FREQU SWITCH (H-6)
Q223 2SC4081
Q222 DTC144EU
REG 5V
Q280 BUFFER (H-11)
Q280 2SC4081
Q229 RP PB 5V SWITCH (H-13)
Q229 2SB624
Q231 PB RP MODE SWITCH
Q231 DTC144EU
D205 DAU202U
Q230 2SB624
D210 DAN202U
Q232 DTC144EU
Q230 (H-5) VA PB 5V SWITCH
Q232 (H-5) VA PB MODE SWITCH
RP PB 5V
VA PB 5V
Q272 SWITCH (H-5)
Q272 DTC143TU
Q240 DTC144EU
Q240 SWITCH (H-5)
Q273 2SB624
D211 DAN202U
Q273 (G-5) SWITCHING REG
Q250 GAIN SWITCH (H-7)
RP PB MODE
VA PB MODE
Q213 (L-10) ERASE CURRENT SWITCH
Q214 (L-8) AMP
Q215 (L-8) FLYING ERASE OSC
Q213 2SA812
Q214 2SA1175
Q215 2SA812
Q238 (G-5) CHROMA AFM BAND TRAP
Q238 2SC4177
Q239 DTC144EU
Q239 L/E SWITCH (G-12)
Q242 (F-6) BUFFER
Q242 2SC4177
Q244 (G-13) BUFFER
Q244 2SA1611
Q245 (G-11) BUFFER
Q245 2SC4177
Q243 DTC144EU
Q243 CUT-OFF FREQU (G-13)
IC201 (G-6) LIMITER
IC201 MC10H116M
CH 1'EQ
Q285 2SC2223
Q284 2SC4081
Q282 2SC2223
Q283 2SC2223
Q285 (K-11) CH 1'HEAD AMP
Q284 (K-11) CH 1'HEAD AMP
Q283 (K-11) CH 1'EQ AMP
Q282 (J-11) CH 1'EQ AMP
Q258 AGC AMP (E-8)
IC202 (E-6) COMPARATOR
IC202 LM393DR
Q291 1MX1
Q291 (E-6) TUNING AMP
Q263 1MX-1
Q263 (E-13) PEAK DETECT/ REFERENCE VOLTAGE
Q203 2SC4081
Q203 (E-7) BUFFER
Q262 2SA1576
Q262 SP/LP DETECT (F-13)
Q265 2SC4081
Q265 CLOG DETECT (E-13)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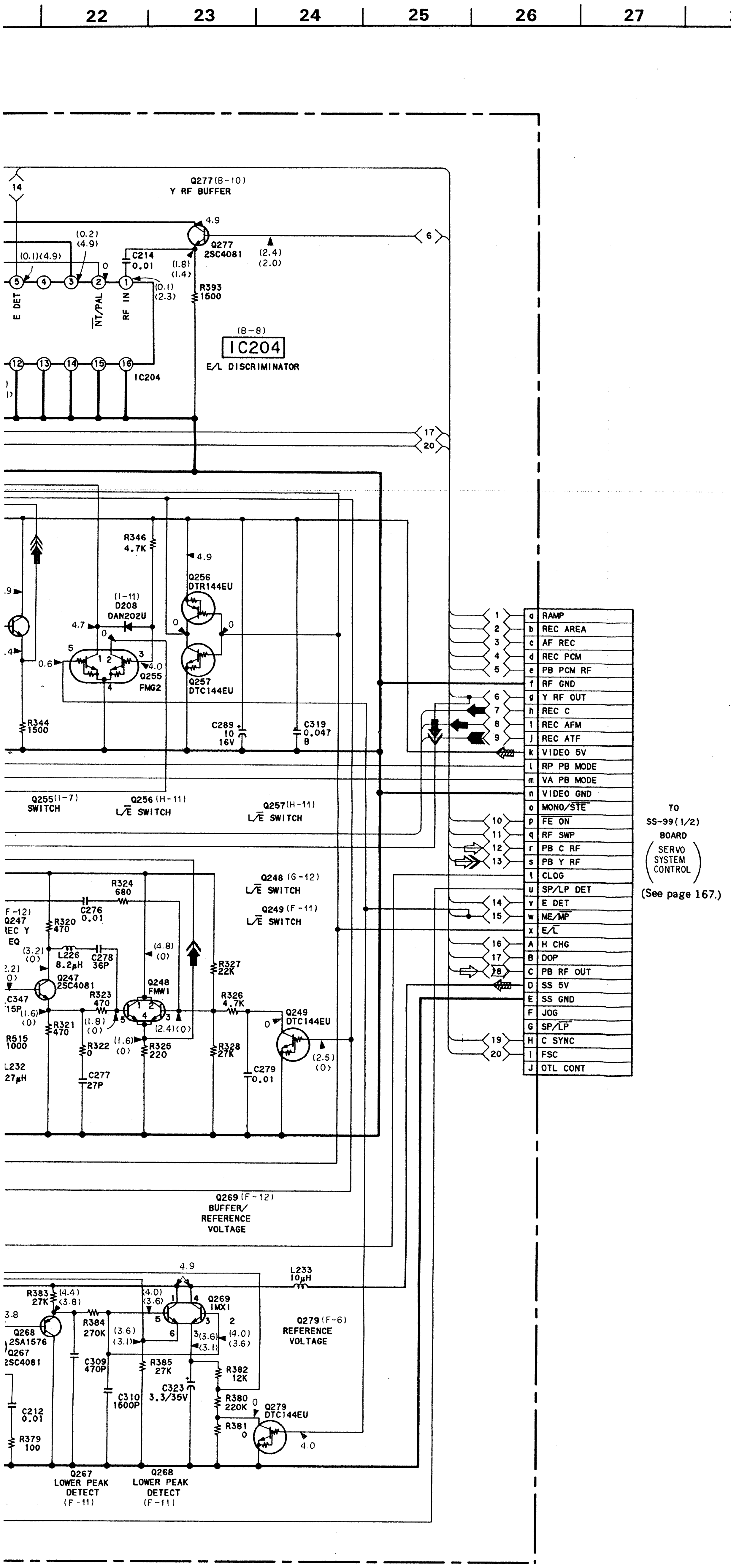
23
Q218 BUFFER (H-12)
Q222 TUNING FREQUENCY SWITCH (H-6)
Q223 MIDDLE TUNING AMP (H-13)
Q224 TUNING FREQUENCY SWITCH (I-6)
Q225 TUNING FREQUENCY SWITCH (H-6)
Q227 MIDDLE TUNING AMP (H-6)
Q277(B-10) Y RF BUFFER
IC204
E/L DISCRIMINATOR
E DET
NT/PAL
RF IN
fsc
DOP
PB 5V
REG 5V
Q229 RP PB 5V SWITCH
Q231 PB RP MODE SWITCH
Q272 SWITCH
Q250 GAIN SWITCH
Q278 BUFFER
C/AFM/ATF MIX
REC C
REC Y
<RP PB 5V>
VA PB 5V>
Q230(H-5) V SWITCH
RP PB MODE
VA PB MODE
Q232(H-5) VA PB MODE SWITCH
Q240 SWITCH
Q273(G-5) SWITCHING REG
Q252(I-10) Y/O/AFM/ATF MIX
Q254(I-8) BUFFER
Q255(I-7) SWITCH
Q256(H-11) L/E SWITCH
Q257(H- L/E SWITCH
Q238 (G-5) CHROMA AFM BAND TRAP
Q242(F-6) BUFFER
Q244(G-13) BUFFER
Q245(G-11) BUFFER
IC201 (G-6) LIMITER
IC201 MC10H116M
Q248 (G- L/E SWITCH
Q249 (F- L/E SWITCH
Q247 REC Y EQ
Q239 L/E SWITCH (G-12)
Q243 CUT-OFF FREQU (G-13)
Q258 AGC AMP (E-8)
Q259 AGC AMP (E-11)
Q261 AMP (E-7)
Q269 (F-12) BUFFER/ REFERENCE VOLTAGE
(E-6) IC202 COMPARATOR
IC202 LM393DR
(E-11) Q260 AMP
Q266 (D-11) AGC DET
Q262 SP/LP DETECT (F-13)
Q265 CLOG DETECT (E-13)
Q267 LOWER PEAK DETECT (F-11)
Q268 LOWER PEAK DETECT (F-11)


22
23
24
25
26
27
28
Q277(B-10)
Y RF BUFFER
Q277
2SC4081
R393
1500
C214
0.01
(B-8)
IC204
E/L DISCRIMINATOR
IC204
E DET
NT/PAL
RF IN
R346
4.7K
Q256
DTR144EU
(I-11)
D208
DAN202U
Q255
FMG2
Q257
DTC144EU
R344
1500
C289
10
16V
C319
0.047
B
Q255(I-7)
SWITCH
Q256(H-11)
L/E SWITCH
Q257(H-11)
L/E SWITCH
R324
680
Q248 (G-12)
L/E SWITCH
Q249 (F-11)
L/E SWITCH
C276
0.01
Q247
REC Y
EQ
R320
470
L226
8.2μH
C278
36P
Q247
2SC4081
R323
470
Q248
FMW1
R327
22K
R326
4.7K
Q249
DTC144EU
C347
15P
R321
470
R515
1000
R322
0
R325
220
R328
27K
C279
0.01
L232
27μH
C277
27P
Q269 (F-12)
BUFFER/
REFERENCE
VOLTAGE
L233
10μH
R383
27K
Q268
2SA1576
Q267
2SC4081
R384
270K
Q269
IMX1
Q279 (F-6)
REFERENCE
VOLTAGE
C309
470P
R385
27K
R382
12K
C323
3.3/35V
C310
1500P
R380
220K
Q279
DTC144EU
R381
0
C212
0.01
R379
100
Q267
LOWER PEAK
DETECT
(F-11)
Q268
LOWER PEAK
DETECT
(F-11)
a RAMP
b REC AREA
c AF REC
d REC PCM
e PB PCM RF
f RF GND
g Y RF OUT
h REC C
i REC AFM
j REC ATF
k VIDEO 5V
l RP PB MODE
m VA PB MODE
n VIDEO GND
o MONO/STE
p FE ON
q RF SWP
r PB C RF
s PB Y RF
t CLOG
u SP/LP DET
v E DET
w ME/MP
x E/L
A H CHG
B DOP
C PB RF OUT
D SS 5V
E SS GND
F JOG
G SP/LP
H C SYNC
I FSC
J OTL CONT
TO
SS-99(1/2)
BOARD
SERVO
SYSTEM
CONTROL
(See page 167.)

• **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

• **Signal path**

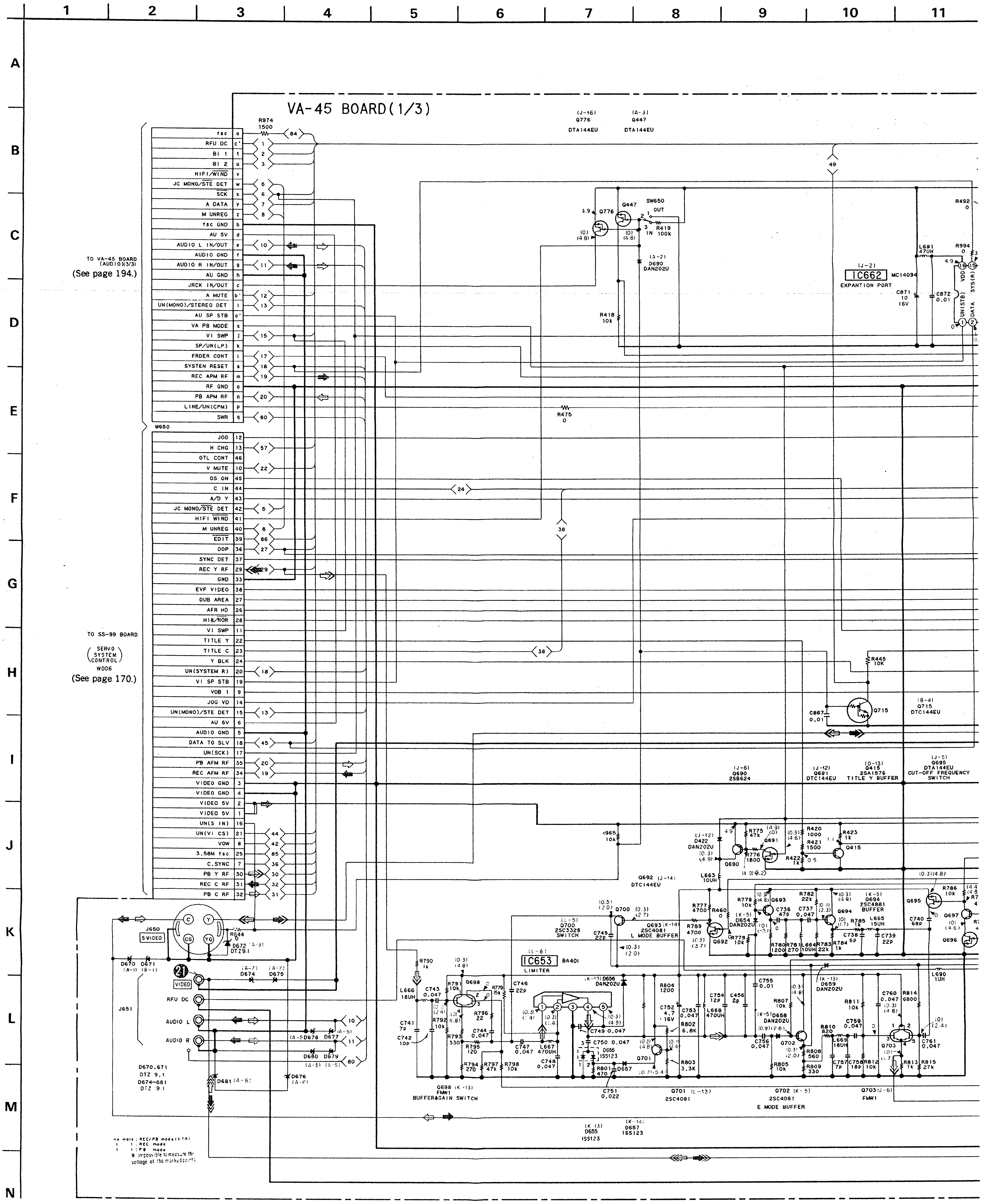
	REC	REC/PB	PB
Ref.signal	➡	⇨	▷

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

VA-45 (Y/CHROMA SIGNAL PROCESS, AUDIO SIGNAL PROCESS) SCHEMATIC DIAGRAM

—Ref. No. VA-45 BOARD: 1000 series—


1
2
3
4
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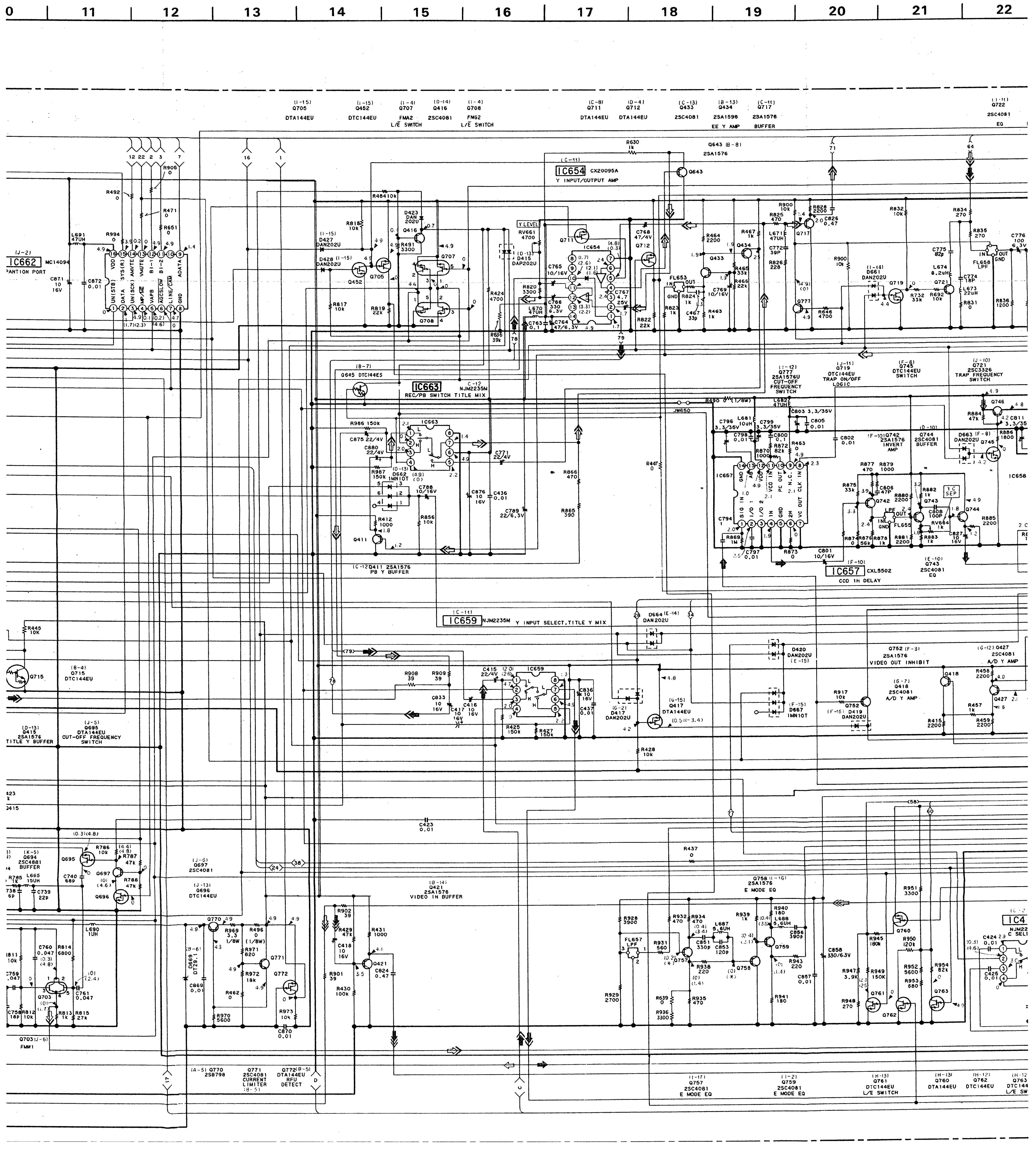
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
VA-45 BOARD(1/3)
R974 1500
fsc
RFU DC
BI 1
BI 2
HIFI/WIND
JC MONO/STE DET
SCK
A DATA
M UNREG
fsc GND
AU 5V
AUDIO L IN/OUT
AUDIO GND
AUDIO R IN/OUT
AU GND
JRCK IN/OUT
A MUTE
UN(MONO)/STEREO DET
AU SP STB
VA PB MODE
VI SWP
SP/UN(LP)
FADER CONT
SYSTEM RESET
REC APM RF
RF GND
PB APM RF
LINE/UN(CPM)
SWR
W650
TO VA-45 BOARD (AUDIO)(3/3)
(See page 194.)
JOG
H CHG
OTL CONT
V MUTE
DS ON
C IN
A/D Y
JC MONO/STE DET
HIFI WIND
M UNREG
EDIT
DOP
SYNC DET
REC Y RF
GND
EVF VIDEO
DUB AREA
AFR HD
H18/NOR
VI SWP
TITLE Y
TITLE C
Y BLK
UN(SYSTEM R)
VI SP STB
VOB 1
JOG VD
UN(MONO)/STE DET
AU 5V
AUDIO GND
DATA TO SLV
UN(SCK)
PB AFM RF
REC AFM RF
VIDEO GND
VIDEO GND
VIDEO 5V
VIDEO 5V
UN(S IN)
UN(VI CS)
VOW
3.58M fsc
C.SYNC
PB Y RF
REC C RF
PB C RF
TO SS-99 BOARD
(SERVO SYSTEM CONTROL)
W006
(See page 170.)
(J-16) Q776 DTA144EU
(A-3) Q447 DTA144EU
SW650
OUT
IN
R419 100k
D690 DAN202U
R418 10k
R475 0
IC662 MC14094
EXPANTION PORT
C871 10 16V
C872 0.01
L691 47UH
R492
R994
R445 10K
C867 0.01
Q715
(B-4) Q715 DTC144EU
(J-6) Q690 2SB624
(J-12) Q691 DTC144EU
(D-13) Q415 2SA1576 TITLE Y BUFFER
(J-5) Q695 DTA144EU CUT-OFF FREQUENCY SWITCH
R965 10k
D422 DAN202U
R775 47k
R776 1800
R420 1000
R421 1500
R422 1k
R423 1k
L663 10UH
Q692 DTC144EU
Q700 2SC3326 SWITCH
Q693 2SC4081 L MODE BUFFER
C745 22P
R777 4700
R460
R778 10k
R789 4700
D654 DAN202U
R779 10k
C736 47P
R782 22k
C737 0.047
Q694 2SC4881 BUFFER
R785
L665 15UH
C738 6P
C739 22P
R780 1200
R781 270
L664 10UH
R783 22k
R784 1k
R786 10k
C740 68P
Q697
Q696
J650
S VIDEO
R644
D672 DTZ9.1
D670
D671
D674
D675
VIDEO
RFU DC
AUDIO L
AUDIO R
J651
D676 D677
D678 D679
D680
D681 (A-6)
D670,671
DTZ 9.1
D674~681
DTZ 9.1
IC653 BA401 LIMITER
R790 1k
L666 18UH
C743 0.047
R791 10k
Q698
R796 22
R779 15k
C746 22P
C741 7P
C742 10P
R792 10k
R793 330
C744 0.047
R795 120
R794 270
R797 47k
R798 10k
C747 0.047
L667 470UH
C748 0.047
D656 DAN202U
C749 0.047
C750 0.047
D655 1SS123
R801 470
D657
Q701
R804 1200
C752 4.7 16V
C753 0.047
L668 470UH
R802 6.8K
R803 3.3K
C754 12P
C456 2P
C755 0.01
R807 10k
D658 DAN202U
C756 0.047
Q702
R808 560
R809 330
R805 10k
D659 DAN202U
R811 10k
C759 0.047
R810 820
L669 18UH
C757 7P
C758 18P
R812 10k
C760 0.047
R814 6800
Q703
R813 1k
R815 27k
C761 0.047
L690 1UH
Q698 FMW1 BUFFER&GAIN SWITCH
C751 0.022
Q701 2SC4081
Q702 2SC4081 E MODE BUFFER
Q703 FMW1
D655 1SS123
D657 1SS123
no mark : REC/PB mode(Y/R)
( ) : REC mode
( ) : PB mode
✱ : impossible to measure the voltage of the marked point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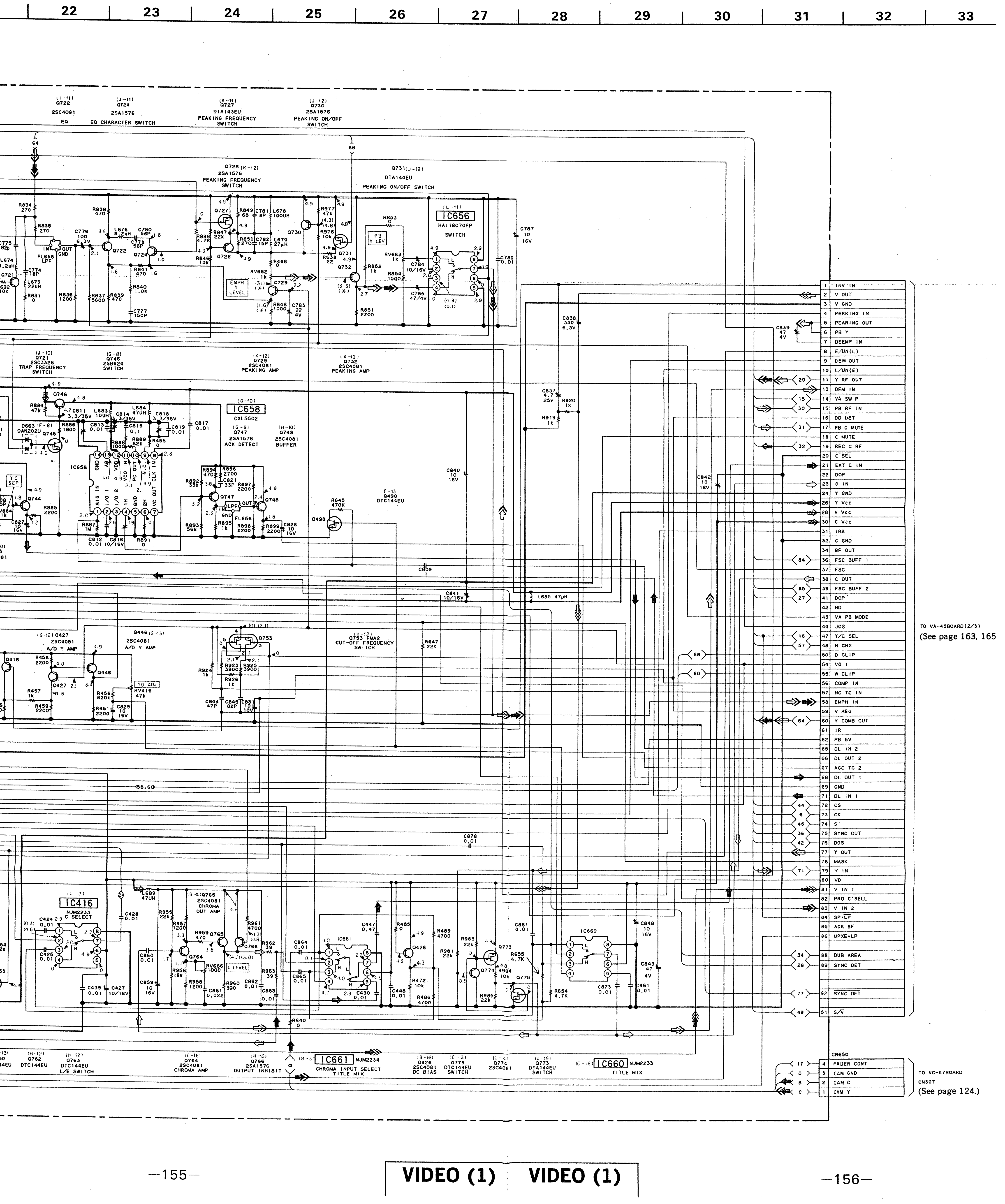
Q705 DTA144EU
Q452 DTC144EU
Q707 FMA2 L/E SWITCH
Q416 2SC4081
Q708 FMG2 L/E SWITCH
Q711 DTA144EU
Q712 DTA144EU
Q433 2SC4081
Q434 2SA1596 EE Y AMP
Q717 2SA1576 BUFFER
Q722 2SC4081 EQ
IC662 MC14094
EXPANTION PORT
IC654 CX20095A Y INPUT/OUTPUT AMP
Q643 2SA1576
Y LEVEL RV661 4700
IC663 NJM2235M REC/PB SWITCH TITLE MIX
Q645 DTC144ES
Q411 2SA1576 PB Y BUFFER
Q777 2SA1576U CUT-OFF FREQUENCY SWITCH
Q719 DTC144EU TRAP ON/OFF LOGIC
Q745 DTC144EU SWITCH
Q721 2SC3326 TRAP FREQUENCY SWITCH
Q742 2SA1576 INVERT AMP
Q744 2SC4081 BUFFER
Q743 2SC4081 EQ
IC657 CXL5502 CCD 1H DELAY
Y C SEP
IC659 NJM2235M Y INPUT SELECT, TITLE Y MIX
Q715 DTC144EU
Q415 2SA1576 TITLE Y BUFFER
Q695 DTA144EU CUT-OFF FREQUENCY SWITCH
Q417 DTA144EU
Q752 2SA1576 VIDEO OUT INHIBIT
Q418 2SC4081 A/D Y AMP
Q427 2SC4081 A/D Y AMP
Q694 2SC4081 BUFFER
Q697 2SC4081
Q696 DTC144EU
Q421 2SA1576 VIDEO IN BUFFER
Q758 2SA1576 E MODE EQ
Q770 2SB798
Q771 2SC4081 CURRENT LIMITER
Q772 DTA144EU RFU DETECT
Q757 2SC4081 E MODE EQ
Q759 2SC4081 E MODE EQ
Q761 DTC144EU L/E SWITCH
Q760 DTA144EU
Q762 DTC144EU
Q763 DTC144EU L/E SWITCH
FL653
FL656 LPF
FL655 LPF
FL657 LPF
JW650



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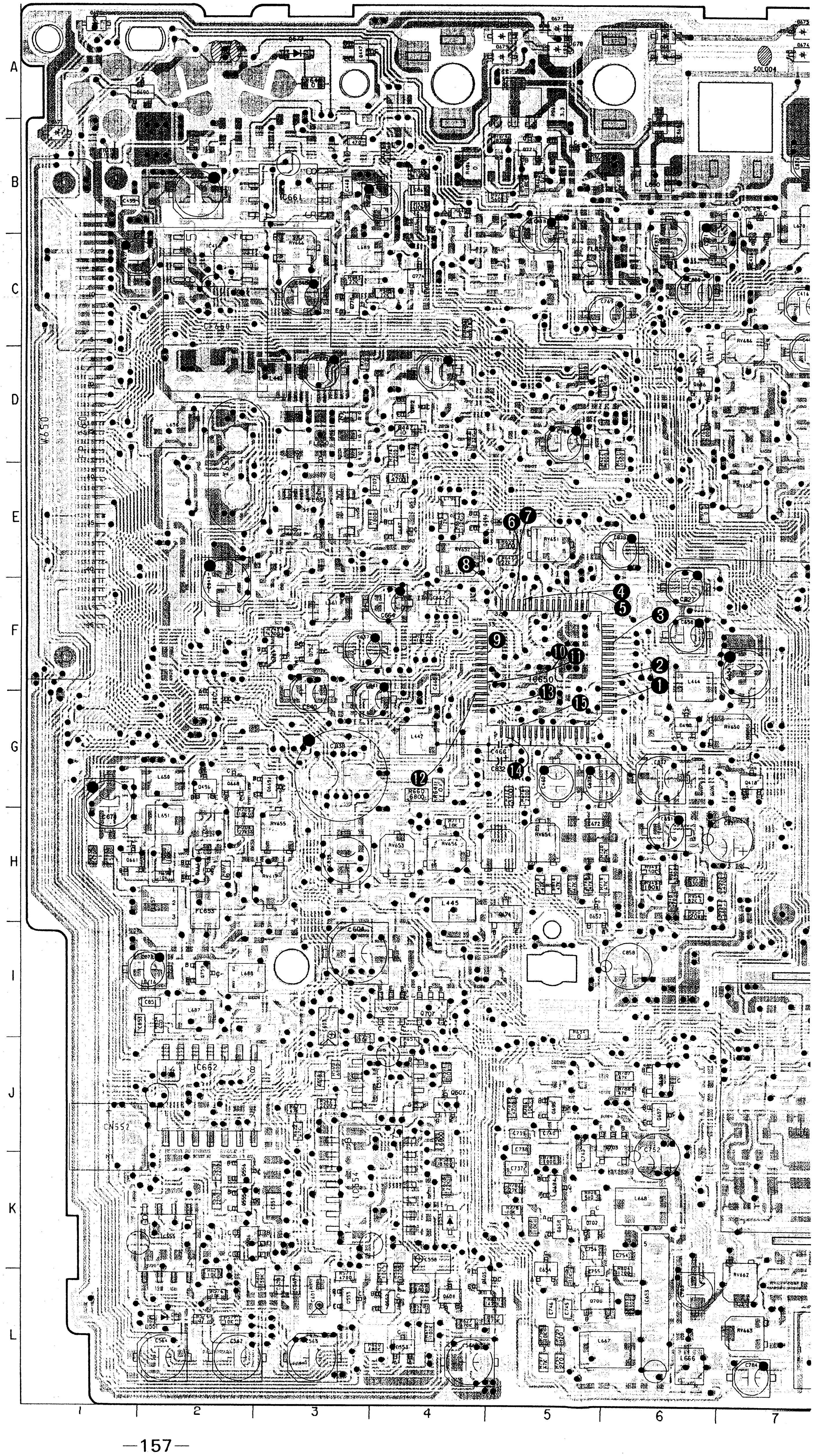
33
(I-11) Q722 2SC4081 EQ
(J-11) Q724 2SA1576 EQ CHARACTER SWITCH
(K-11) Q727 DTA143EU PEAKING FREQUENCY SWITCH
(J-12) Q730 2SA1576 PEAKING ON/OFF SWITCH
Q728 (K-12) 2SA1576 PEAKING FREQUENCY SWITCH
Q731 (J-12) DTA144EU PEAKING ON/OFF SWITCH
(L-11) IC656 HA118070FP SWITCH
FL658 LPF
EMPH Y LEVEL
PB Y LEV
RV662
RV663
(J-10) Q721 2SC3326 TRAP FREQUENCY SWITCH
(G-8) Q746 2SB624 SWITCH
(K-12) Q729 2SC4081 PEAKING AMP
(K-12) Q732 2SC4081 PEAKING AMP
(G-10) IC658 CXL5502
(G-9) Q747 2SA1576 ACK DETECT
(H-10) Q748 2SC4081 BUFFER
D663 (F-8) DAN202U
Y/C SEP
LPF
FL656
F-13 Q498 DTC144EU
(G-12) Q427 2SC4081 A/D Y AMP
Q446 (G-13) 2SC4081 A/D Y AMP
YD ADJ RV416
(B-12) Q753 FMA2 CUT-OFF FREQUENCY SWITCH
L685 47µH
(C-2) IC416 NJM2233 C SELECT
(B-16) Q765 2SC4081 CHROMA OUT AMP
C LEVEL
IC661
IC660
(H-13) Q762 DTC144EU
(H-12) Q763 DTC144EU L/E SWITCH
(C-16) Q764 2SC4081 CHROMA AMP
(B-16) Q766 2SA1576 OUTPUT INHIBIT
(B-3) IC661 NJM2234 CHROMA INPUT SELECT TITLE MIX
(B-16) Q426 2SC4081 DC BIAS
(C-3) Q775 DTC144EU SWITCH
(C-4) Q774 2SC4081
(C-15) Q773 DTA144EU SWITCH
(C-16) IC660 NJM2233 TITLE MIX
1 INV IN
2 V OUT
3 V GND
4 PERKING IN
5 PEARING OUT
6 PB Y
7 DEEMP IN
8 E/UN(L)
9 DEM OUT
10 L/UN(E)
11 Y RF OUT
13 DEM IN
14 VA SW P
15 PB RF IN
16 DD DET
17 PB C MUTE
18 C MUTE
19 REC C RF
20 C SEL
21 EXT C IN
22 DOP
23 C IN
24 Y GND
26 Y Vcc
28 V Vcc
30 C Vcc
31 IRB
32 C GND
34 BF OUT
36 FSC BUFF 1
37 FSC
38 C OUT
39 FSC BUFF 2
41 DOP
42 HD
43 VA PB MODE
44 JOG
47 Y/C SEL
48 H CHG
50 D CLIP
54 VG 1
55 W CLIP
56 COMP IN
57 NC TC IN
58 EMPH IN
59 V REG
60 Y COMB OUT
61 IR
62 PB 5V
65 DL IN 2
66 DL OUT 2
67 AGC TC 2
68 DL OUT 1
69 GND
71 DL IN 1
72 CS
73 CK
74 SI
75 SYNC OUT
76 DOS
77 Y OUT
78 MASK
79 Y IN
80 VD
81 V IN 1
82 PRO C'SELL
83 V IN 2
84 SP-LP
85 ACK BF
86 MPXE+LP
88 DUB AREA
89 SYNC DET
92 SYNC DET
51 S/V
TO VA-45BOARD(2/3)
(See page 163, 165
CN650
4 FADER CONT
3 CAM GND
2 CAM C
1 CAM Y
TO VC-678OARD CN307
(See page 124.)

VIDEO (1) VIDEO (1)

VA-45 (Y/CHROMA SIGNAL PROCESS, AUDIO SIGNAL PROCESS) PRINTED WIRING BOARD

—Ref. No. VA-45 BOARD : 1000 series—

VA−45 BOARD
(COMPONENT SIDE)



DIODE

D415	8-719-421-32	DIODE MA141A-TX
D417	8-719-941-86	DIODE DAN202U
D419	8-719-941-86	DIODE DAN202U
D420	8-719-941-86	DIODE DAN202U
D422	8-719-941-86	DIODE DAN202U
D423	8-719-941-86	DIODE DAN202U
D427	8-719-941-86	DIODE DAN202U
D428	8-719-941-86	DIODE DAN202U
D551	8-719-404-46	DIODE MA110
D552	8-719-941-86	DIODE DAN202U
D553	8-719-941-86	DIODE DAN202U
D554	8-719-404-46	DIODE MA110
D650	8-719-941-86	DIODE DAN202U
D651	8-719-941-86	DIODE DAN202U
D652	8-719-941-86	DIODE DAN202U
D654	8-719-941-86	DIODE DAN202U
D655	8-719-800-76	DIODE 1SS123
D656	8-719-941-86	DIODE DAN202U
D657	8-719-800-76	DIODE 1SS123
D658	8-719-941-86	DIODE DAN202U
D659	8-719-941-86	DIODE DAN202U
D661	8-719-941-86	DIODE DAN202U
D662	8-719-951-22	DIODE IMN10
D663	8-719-941-86	DIODE DAN202U
D664	8-719-941-86	DIODE DAN202U
D667	8-719-951-22	DIODE IMN10
D669	8-719-978-43	DIODE DTZ9.1B
D670	8-719-978-43	DIODE DTZ9.1B
D671	8-719-978-43	DIODE DTZ9.1B
D672	8-719-978-43	DIODE DTZ9.1B
D674	8-719-978-43	DIODE DTZ9.1B
D675	8-719-978-43	DIODE DTZ9.1B
D676	8-719-978-43	DIODE DTZ9.1B
D677	8-719-978-43	DIODE DTZ9.1B
D678	8-719-978-43	DIODE DTZ9.1B
D679	8-719-978-43	DIODE DTZ9.1B
D680	8-719-978-43	DIODE DTZ9.1B
D681	8-719-978-43	DIODE DTZ9.1B
D690	8-719-941-86	DIODE DAN202U

IC

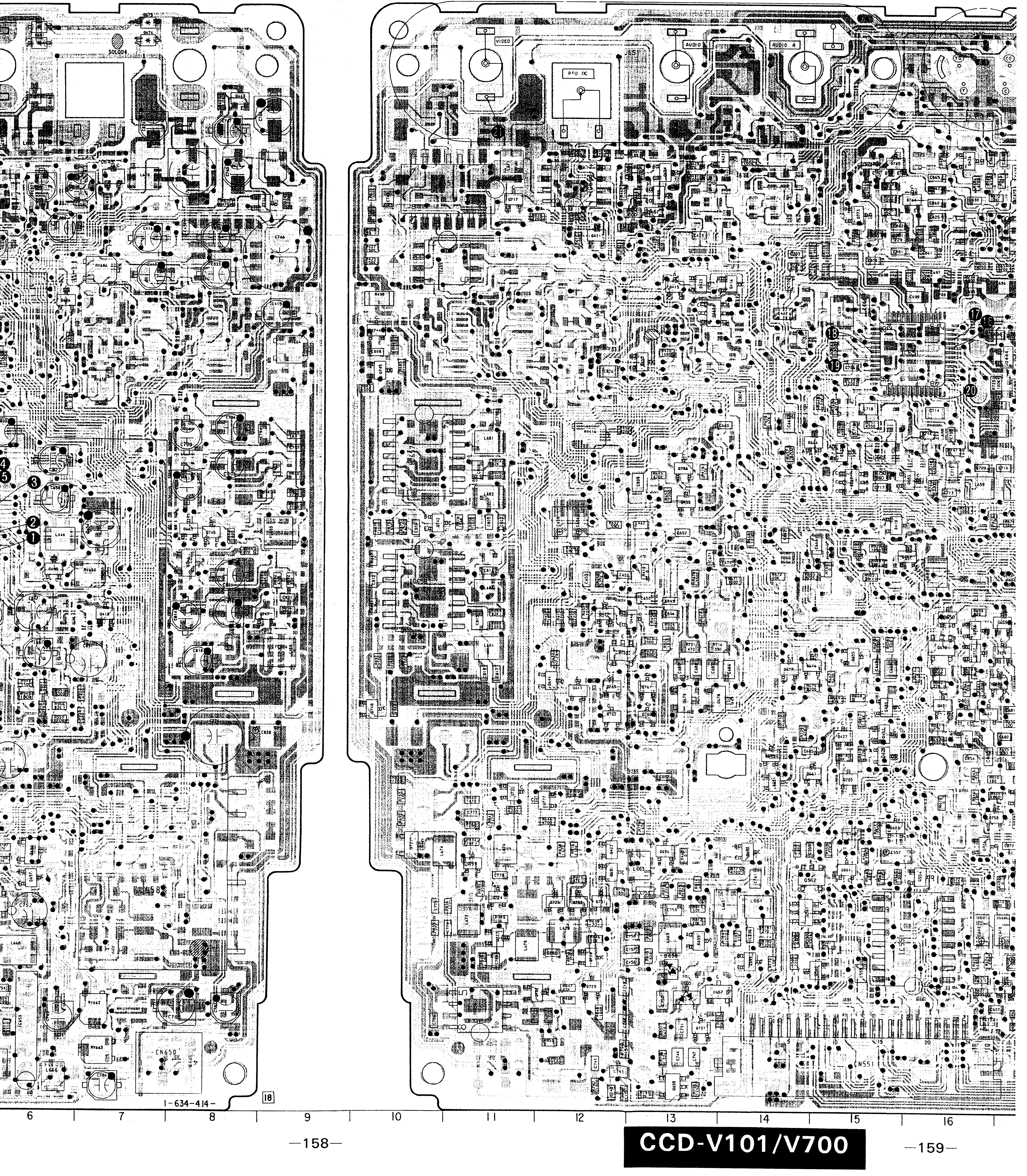
IC416	8-759-710-09	IC NJM2233AM
IC551	8-759-009-07	IC MC14053BF
IC553	8-759-998-98	IC LM358DR
IC554	8-759-932-54	IC MC14066BF
IC555	8-759-701-02	IC NJM2073M
IC650	8-752-036-19	IC CXA1207R
IC651	8-752-036-20	IC CXA1208R
IC653	8-759-925-60	IC BA401
IC654	8-752-009-51	IC CX20095A
IC656	8-759-320-76	IC HA118070FP
IC657	8-752-334-44	IC CXL5502M
IC658	8-752-332-68	IC CXL5502M
IC659	8-759-710-29	IC NJM2235M
IC660	8-759-710-07	IC NJM2234M
IC661	8-759-710-07	IC NJM2234M
IC662	8-759-009-22	IC MC14094BF
IC663	8-759-710-29	IC NJM2235M

TRANSISTOR

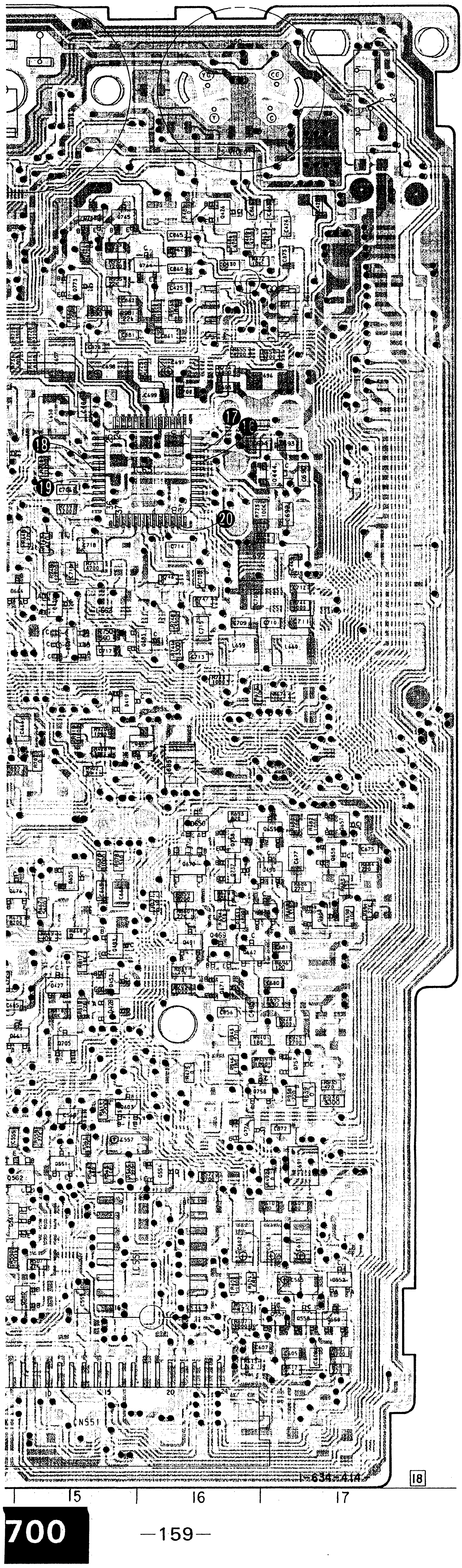
Q411	8-729-905-23	TRANSISTOR 2SA1576-R
Q415	8-729-905-23	TRANSISTOR 2SA1576-R
Q416	8-729-905-35	TRANSISTOR 2SC4081-R
Q417	8-729-905-12	TRANSISTOR DTA144EU
Q418	8-729-905-35	TRANSISTOR 2SC4081-R
Q421	8-729-905-23	TRANSISTOR 2SA1576-R
Q426	8-729-905-35	TRANSISTOR 2SC4081-R
Q427	8-729-905-35	TRANSISTOR 2SC4081-R
Q433	8-729-905-35	TRANSISTOR 2SC4081-R
Q434	8-729-905-23	TRANSISTOR 2SA1576-R
Q444	8-729-905-35	TRANSISTOR 2SC4081-R
Q446	8-729-905-35	TRANSISTOR 2SC4081-R
Q447	8-729-905-12	TRANSISTOR DTA144EU
Q452	8-729-905-18	TRANSISTOR DTC144EU
Q469	8-729-905-18	TRANSISTOR DTC144EU
Q490	8-729-905-35	TRANSISTOR 2SC4081-R
Q491	8-729-905-12	TRANSISTOR DTA144EU
Q493	8-729-905-12	TRANSISTOR DTA144EU
Q494	8-729-905-35	TRANSISTOR 2SC4081-R
Q496	8-729-905-35	TRANSISTOR 2SC4081-R
Q498	8-729-905-18	TRANSISTOR DTC144EU
Q551	8-729-905-23	TRANSISTOR 2SA1576-R
Q552	8-729-905-23	TRANSISTOR 2SA1576-R
Q553	8-729-905-35	TRANSISTOR 2SC4081-R
Q554	8-729-905-35	TRANSISTOR 2SC4081-R
Q555	8-729-905-35	TRANSISTOR 2SC4081-R
Q556	8-729-905-35	TRANSISTOR 2SC4081-R
Q557	8-729-905-18	TRANSISTOR DTC144EU
Q558	8-729-905-12	TRANSISTOR DTA
Q559	8-729-905-23	TRANSISTOR 2SA1
Q560	8-729-905-18	TRANSISTOR DTC
Q561	8-729-907-26	TRANSISTOR IMX1
Q562	8-729-904-07	TRANSISTOR FMG
Q603	8-729-905-35	TRANSISTOR 2SC4
Q606	8-729-902-93	TRANSISTOR FMG
Q607	8-729-922-95	TRANSISTOR DTC
Q608	8-729-905-23	TRANSISTOR 2SA1
Q641	8-729-905-12	TRANSISTOR DTA
Q643	8-729-905-23	TRANSISTOR 2SA1
Q644	8-729-905-12	TRANSISTOR DTA
Q645	8-729-900-89	TRANSISTOR DTC
Q645	8-729-905-18	TRANSISTOR DTC
Q655	8-729-905-12	TRANSISTOR DTA
Q657	8-729-905-35	TRANSISTOR 2SC4
Q658	8-729-905-35	TRANSISTOR 2SC4

Q558	8-729-905-12	TRANSISTOR DTA144EU
Q559	8-729-905-23	TRANSISTOR 2SA1576-R
Q560	8-729-905-18	TRANSISTOR DTC144EU
Q561	8-729-907-26	TRANSISTOR IMX1
Q562	8-729-904-07	TRANSISTOR FMG2
Q603	8-729-905-35	TRANSISTOR 2SC4081-R
Q606	8-729-902-93	TRANSISTOR FMG4
Q607	8-729-922-95	TRANSISTOR DTC143TU
Q608	8-729-905-23	TRANSISTOR 2SA1576-R
Q641	8-729-905-12	TRANSISTOR DTA144EU
Q643	8-729-905-23	TRANSISTOR 2SA1576-R
Q644	8-729-905-12	TRANSISTOR DTA144EU
Q645	8-729-900-89	TRANSISTOR DTC144ES
Q645	8-729-905-18	TRANSISTOR DTC144EU
Q655	8-729-905-12	TRANSISTOR DTA144EU
Q657	8-729-905-35	TRANSISTOR 2SC4081-R
Q658	8-729-905-35	TRANSISTOR 2SC4081-R
Q659	8-729-905-35	TRANSISTOR 2SC4081-R
Q660	8-729-905-35	TRANSISTOR 2SC4081-R
Q661	8-729-905-12	TRANSISTOR DTA144EU
Q662	8-729-905-12	TRANSISTOR DTA144EU
Q665	8-729-905-45	TRANSISTOR DTA143EU
Q666	8-729-905-23	TRANSISTOR 2SA1576-R
Q668	8-729-905-35	TRANSISTOR 2SC4081-R
Q669	8-729-905-12	TRANSISTOR DTA144EU
Q670	8-729-903-10	TRANSISTOR FMW1
Q671	8-729-905-23	TRANSISTOR 2SA1576-R
Q674	8-729-162-44	TRANSISTOR 2SB624-BV4
Q675	8-729-905-18	TRANSISTOR DTC144EU
Q676	8-729-905-12	TRANSISTOR DTA144EU
Q677	8-729-905-12	TRANSISTOR DTA144EU
Q678	8-729-202-38	TRANSISTOR 2SC3326N
Q679	8-729-202-38	TRANSISTOR 2SC3326N
Q681	8-729-905-35	TRANSISTOR 2SC4081-R
Q683	8-729-905-23	TRANSISTOR 2SA1576-R
Q686	8-729-905-35	TRANSISTOR 2SC4081-R
Q687	8-729-905-35	TRANSISTOR 2SC4081-R
Q690	8-729-162-44	TRANSISTOR 2SB624-BV4
Q691	8-729-905-18	TRANSISTOR DTC144EU
Q692	8-729-905-18	TRANSISTOR DTC144EU
Q693	8-729-905-35	TRANSISTOR 2SC4081-R
Q694	8-729-905-35	TRANSISTOR 2SC4081-R
Q695	8-729-905-12	TRANSISTOR DTA144EU
Q696	8-729-905-18	TRANSISTOR DTC144EU
Q697	8-729-905-35	TRANSISTOR 2SC4081-R
Q698	8-729-903-10	TRANSISTOR FMW1
Q700	8-729-202-38	TRANSISTOR 2SC3326N
Q701	8-729-905-35	TRANSISTOR 2SC4081-R
Q702	8-729-905-35	TRANSISTOR 2SC4081-R
Q703	8-729-903-10	TRANSISTOR FMW1
Q705	8-729-905-12	TRANSISTOR DTA144EU
Q707	8-729-904-20	TRANSISTOR FMA2
Q708	8-729-904-07	TRANSISTOR FMG2
Q711	8-729-905-12	TRANSISTOR DTA144EU
Q712	8-729-905-12	TRANSISTOR DTA144EU
Q715	8-729-905-18	TRANSISTOR DTC144EU
Q717	8-729-905-23	TRANSISTOR 2SA1576-R
Q719	8-729-905-18	TRANSISTOR DTC144EU
Q721	8-729-202-38	TRANSISTOR 2SC3326N
Q722	8-729-905-35	TRANSISTOR 2SC4081-R
Q724	8-729-905-23	TRANSISTOR 2SA1576-R
Q727	8-729-905-45	TRANSISTOR DTA143EU
Q728	8-729-905-23	TRANSISTOR 2SA1576-R
Q729	8-729-905-35	TRANSISTOR 2SC4081-R
Q730	8-729-905-23	TRANSISTOR 2SA1576-R
Q731	8-729-905-12	TRANSISTOR DTA144EU
Q732	8-729-905-35	TRANSISTOR 2SC4081-R
Q737	8-729-905-35	TRANSISTOR 2SC4081-R
Q738	8-729-905-35	TRANSISTOR 2SC4081-R
Q742	8-729-905-23	TRANSISTOR 2SA1576-R
Q743	8-729-905-35	TRANSISTOR 2SC4081-R
Q744	8-729-905-35	TRANSISTOR 2SC4081-R
Q745	8-729-905-18	TRANSISTOR DTC144EU
Q746	8-729-162-44	TRANSISTOR 2SB624-BV4
Q747	8-729-905-23	TRANSISTOR 2SA1576-R
Q748	8-729-905-35	TRANSISTOR 2SC4081-R
Q752	8-729-905-23	TRANSISTOR 2SA1576-R
Q753	8-729-904-20	TRANSISTOR FMA2
Q757	8-729-905-35	TRANSISTOR 2SC4081-R
Q758	8-729-905-23	TRANSISTOR 2SA1576-R
Q759	8-729-905-35	TRANSISTOR 2SC4081-R
Q760	8-729-905-12	TRANSISTOR DTA144EU
Q761	8-729-905-18	TRANSISTOR DTC144EU
Q762	8-729-905-18	TRANSISTOR DTC144EU
Q763	8-729-905-18	TRANSISTOR DTC144EU
Q764		
Q765		
Q766		
Q767		
Q770		
Q771		
Q772		
Q773		
Q774		
Q775		
Q776		
Q777		
Q786		

VA-45 BOARD
(CONDUCTOR SIDE)



18	8-729-905-35	TRANSISTOR 2SC4081-R
2	8-729-905-23	TRANSISTOR 2SA1576-R
3	8-729-905-35	TRANSISTOR 2SC4081-R
4	8-729-905-35	TRANSISTOR 2SC4081-R
5	*8-729-905-18*	*TRANSISTOR DTC144EU*
6	8-729-162-44	TRANSISTOR 2SB624-BV4
7	8-729-905-23	TRANSISTOR 2SA1576-R
8	8-729-905-35	TRANSISTOR 2SC4081-R
2	8-729-905-23	TRANSISTOR 2SA1576-R
3	8-729-904-20	TRANSISTOR FMA2
7	8-729-905-35	TRANSISTOR 2SC4081-R
8	8-729-905-23	TRANSISTOR 2SA1576-R
9	8-729-905-35	TRANSISTOR 2SC4081-R
0	8-729-905-12	TRANSISTOR DTA144EU
1	8-729-905-18	TRANSISTOR DTC144EU
2	8-729-905-18	TRANSISTOR DTC144EU
3	8-729-905-18	TRANSISTOR DTC144EU
Q764	8-729-905-35	TRANSISTOR 2SC4081-R
Q765	8-729-905-35	TRANSISTOR 2SC4081-R
Q766	8-729-905-23	TRANSISTOR 2SA1576-R
Q767	8-729-905-18	TRANSISTOR DTC144EU
Q770	8-729-101-07	TRANSISTOR 2SB798-L
Q771	8-729-905-35	TRANSISTOR 2SC4081-R
Q772	8-729-905-12	TRANSISTOR DTA144EU
Q773	8-729-905-12	TRANSISTOR DTA144EU
Q774	8-729-905-35	TRANSISTOR 2SC4081-R
Q775	8-729-905-18	TRANSISTOR DTC144EU
Q776	8-729-905-12	TRANSISTOR DTA144EU
Q777	8-729-905-23	TRANSISTOR 2SA1576-R
Q786	8-729-905-18	TRANSISTOR DTC144EU



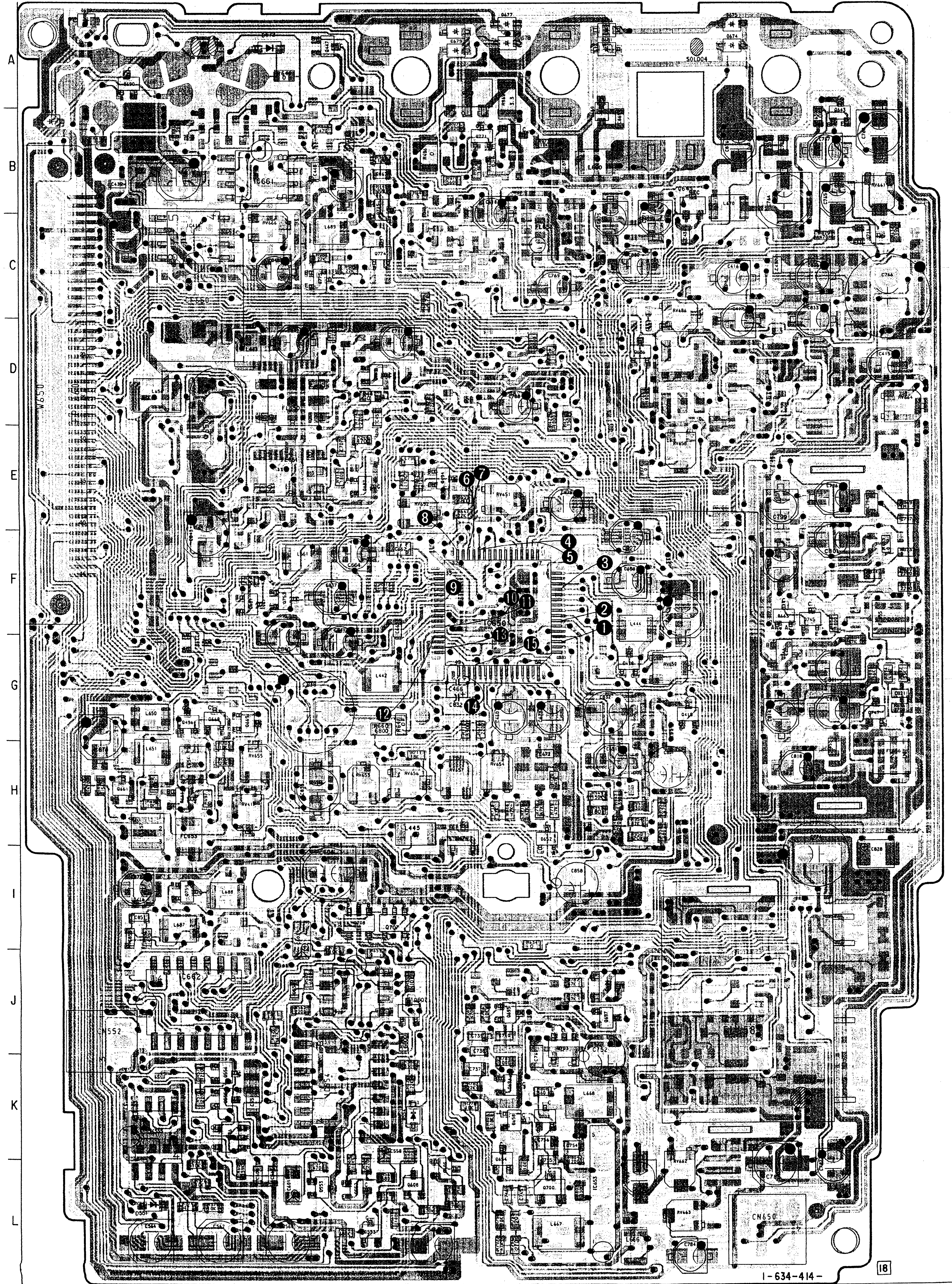
VA-45 (Y/CHROMA SIGNAL PROCESS, AUDIO SIGNAL PROCESS) PRINTED WIRING BOARD

—Ref. No. VA-45 BOARD : 1000 series—

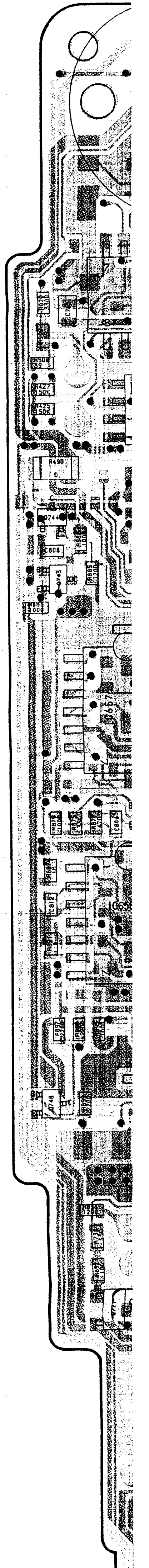
DIODE

D415	8-719-421-32	DIODE MA141A-TX
D417	8-719-941-86	DIODE DAN202U
D419	8-719-941-86	DIODE DAN202U
D420	8-719-941-86	DIODE DAN202U
D422	8-719-941-86	DIODE DAN202U
D423	8-719-941-86	DIODE DAN202U
D427	8-719-941-86	DIODE DAN202U
D428	8-719-941-86	DIODE DAN202U
D551	8-719-404-46	DIODE MA110
D552	8-719-941-86	DIODE DAN202U
D553	8-719-941-86	DIODE DAN202U
D554	8-719-404-46	DIODE MA110
D650	8-719-941-86	DIODE DAN202U
D651	8-719-941-86	DIODE DAN202U
D652	8-719-941-86	DIODE DAN202U
D654	8-719-941-86	DIO
D655	8-719-800-76	DIO
D656	8-719-941-86	DIO
D657	8-719-800-76	DIO
D658	8-719-941-86	DIO
D659	8-719-941-86	DIO
D661	8-719-941-86	DIO
D662	8-719-951-22	DIO
D663	8-719-941-86	DIO
D664	8-719-941-86	DIO
D667	8-719-951-22	DIO
D669	8-719-978-43	DIO
D670	8-719-978-43	DIO
D671	8-719-978-43	DIO
D672	8-719-978-43	DIO
D674	8-719-978-43	DIO
D675	8-719-978-43	DIO

VA-45 BOARD
(COMPONENT SIDE)



VA-45 BC
(CONDUCTO



	-719-941-86	DIODE DAN202U
	-719-800-76	DIODE 1SS123
	-719-941-86	DIODE DAN202U
	-719-800-76	DIODE 1SS123
	-719-941-86	DIODE DAN202U
	-719-941-86	DIODE DAN202U
	-719-941-86	DIODE DAN202U
	-719-951-22	DIODE IMN10
	-719-941-86	DIODE DAN202U
	-719-941-86	DIODE DAN202U
	-719-951-22	DIODE IMN10
	-719-978-43	DIODE DTZ9.1B
	-719-978-43	DIODE DTZ9.1B
	-719-978-43	DIODE DTZ9.1B
	-719-978-43	DIODE DTZ9.1B
	-719-978-43	DIODE DTZ9.1B
	-719-978-43	DIODE DTZ9.1B
D676	8-719-978-43	DIODE DTZ9.1B
D677	8-719-978-43	DIODE DTZ9.1B
D678	8-719-978-43	DIODE DTZ9.1B
D679	8-719-978-43	DIODE DTZ9.1B
D680	8-719-978-43	DIODE DTZ9.1B
D681	8-719-978-43	DIODE DTZ9.1B
D690	8-719-941-86	DIODE DAN202U

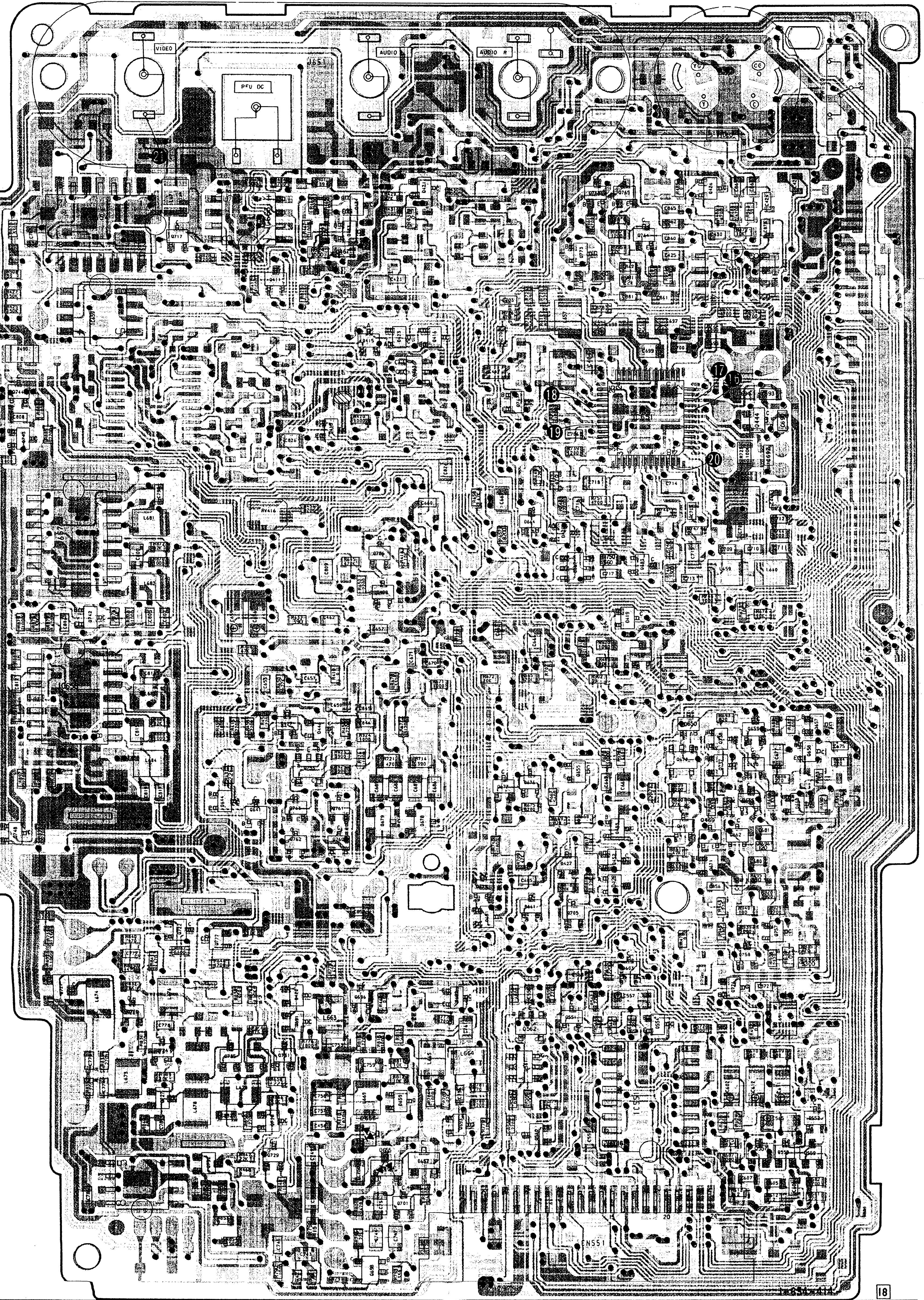
IC

IC416	8-759-710-09	IC NJM2233AM
IC551	8-759-009-07	IC MC14053BF
IC553	8-759-998-98	IC LM358DR
IC554	8-759-932-54	IC MC14066BF
IC555	8-759-701-02	IC NJM2073M
IC650	8-752-036-19	IC CXA1207R
IC651	8-752-036-20	IC CXA1208R
IC653	8-759-925-60	IC BA401
IC654	8-752-009-51	IC CX20095A
IC656	8-759-320-76	IC HA118070FP
IC657	8-752-334-44	IC CXL5502M
IC658	8-752-332-68	IC CXL5502M
IC659	8-759-710-29	IC NJM2235M
IC660	8-759-710-07	IC NJM2234M
IC661	8-759-710-07	IC NJM2234M
IC662	8-759-009-22	IC MC14094BF
IC663	8-759-710-29	IC NJM2235M

TRANSISTOR

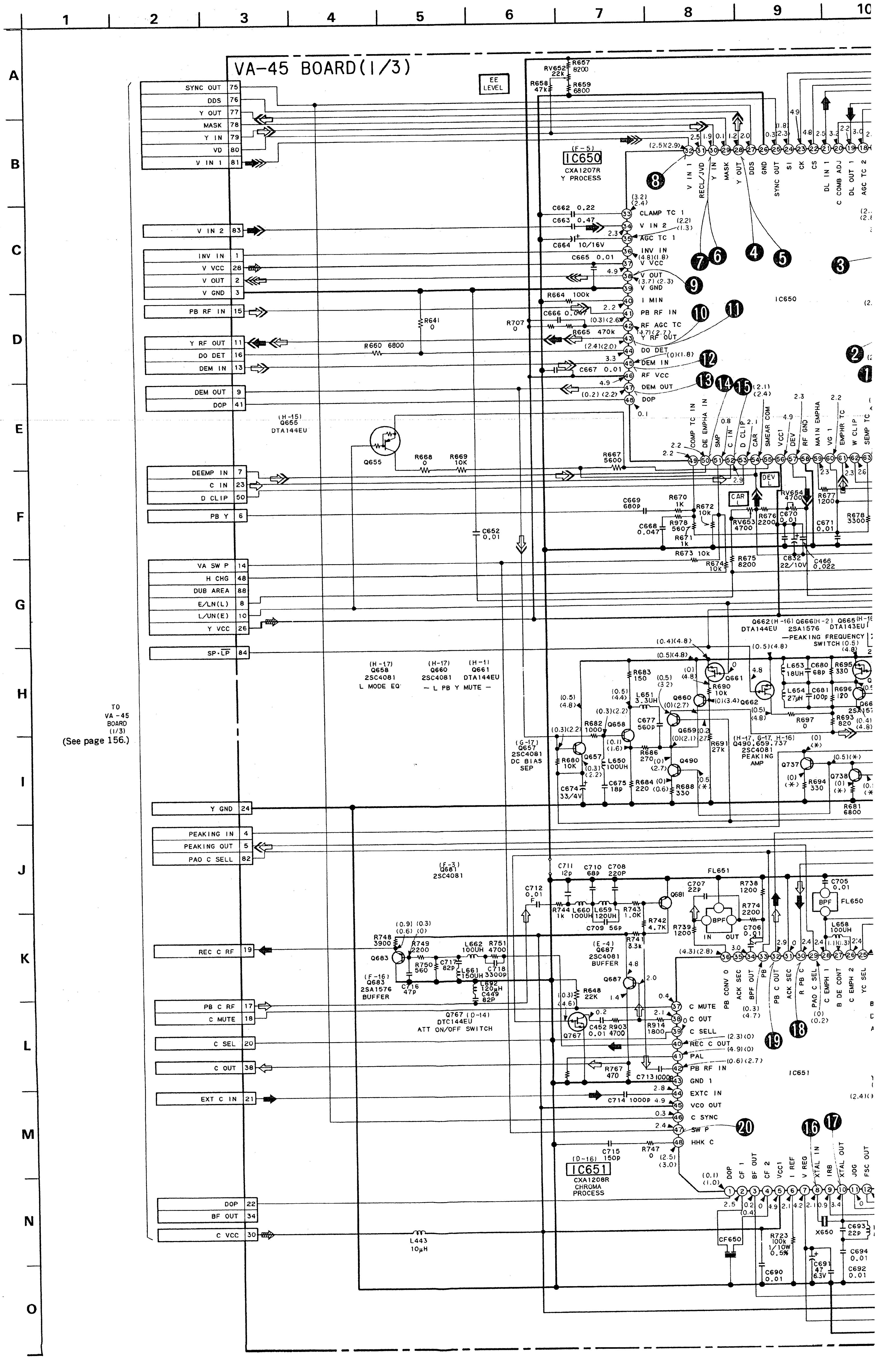
Q411	8-729-905-23	TRANSISTOR 2SA1576-R
Q415	8-729-905-23	TRANSISTOR 2SA1576-R
Q416	8-729-905-35	TRANSISTOR 2SC4081-R
Q417	8-729-905-12	TRANSISTOR DTA144EU
Q418	8-729-905-35	TRANSISTOR 2SC4081-R
Q421	8-729-905-23	TRANSISTOR 2SA1576-R
Q426	8-729-905-35	TRANSISTOR 2SC4081-R
Q427	8-729-905-35	TRANSISTOR 2SC4081-R
Q433	8-729-905-35	TRANSISTOR 2SC4081-R
Q434	8-729-905-23	TRANSISTOR 2SA1576-R
Q444	8-729-905-35	TRANSISTOR 2SC4081-R
Q446	8-729-905-35	TRANSISTOR 2SC4081-R
Q447	8-729-905-12	TRANSISTOR DTA144EU
Q452	8-729-905-18	TRANSISTOR DTC144EU
Q469	8-729-905-18	TRANSISTOR DTC144EU
Q490	8-729-905-35	TRANSISTOR 2SC4081-R
Q491	8-729-905-12	TRANSISTOR DTA144EU
Q493	8-729-905-12	TRANSISTOR DTA144EU
Q494	8-729-905-35	TRANSISTOR 2SC4081-R
Q496	8-729-905-35	TRANSISTOR 2SC4081-R
Q498	8-729-905-18	TRANSISTOR DTC144EU
Q551	8-729-905-23	TRANSISTOR 2SA1576-R
Q552	8-729-905-23	TRANSISTOR 2SA1576-R
Q553	8-729-905-35	TRANSISTOR 2SC4081-R
Q554	8-729-905-35	TRANSISTOR 2SC4081-R
Q555	8-729-905-35	TRANSISTOR 2SC4081-R
Q556	8-729-905-35	TRANSISTOR 2SC4081-R
Q557	8-729-905-18	TRANSISTOR DTC144EU
Q558	8-729-905-12	TRANSISTOR DTA144EU
Q559	8-729-905-23	TRANSISTOR 2SA1576-R
Q560	8-729-905-18	TRANSISTOR DTC144EU
Q561	8-729-907-26	TRANSISTOR IMX1
Q562	8-729-904-07	TRANSISTOR FMG2
Q603	8-729-905-35	TRANSISTOR 2SC4081-R
Q606	8-729-902-93	TRANSISTOR FMG4
Q607	8-729-922-95	TRANSISTOR DTC143TU
Q608	8-729-905-23	TRANSISTOR 2SA1576-R
Q641	8-729-905-12	TRANSISTOR DTA144EU
Q643	8-729-905-23	TRANSISTOR 2SA1576-R
Q644	8-729-905-12	TRANSISTOR DTA144EU
Q645	8-729-900-89	TRANSISTOR DTC144ES
Q645	8-729-905-18	TRANSISTOR DTC144EU
Q655	8-729-905-12	TRANSISTOR DTA144EU
Q657	8-729-905-35	TRANSISTOR 2SC4081-R
Q658	8-729-905-35	TRANSISTOR 2SC4081-R
Q659	8-729-905-35	TRANSISTOR 2SC4081-R
Q660	8-729-905-35	TRANSISTOR 2SC4081-R
Q661	8-729-905-12	TRANSISTOR DTA144EU
Q662	8-729-905-12	TRANSISTOR DTA144EU
Q665	8-729-905-45	TRANSISTOR DTA143EU
Q666	8-729-905-23	TRANSISTOR 2SA1576-R
Q668	8-729-905-35	TRANSISTOR 2SC4081-R
Q669	8-729-905-12	TRANSISTOR DTA144EU
Q670	8-729-903-10	TRANSISTOR FMW1
Q671	8-729-905-23	TRANSISTOR 2SA1576-R
Q674	8-729-162-44	TRANSISTOR 2SB624-BV4
Q675	8-729-905-18	TRANSISTOR DTC144EU
Q676	8-729-905-12	TRANSISTOR DTA144EU
Q677	8-729-905-12	TRANSISTOR DTA144EU
Q678	8-729-202-38	TRANSISTOR 2SC3326N
Q679	8-729-202-38	TRANSISTOR 2SC3326N
Q681	8-729-905-35	TRANSISTOR 2SC4081-R
Q683	8-729-905-23	TRANSISTOR 2SA1576-R
Q686	8-729-905-35	TRANSISTOR 2SC4081-R
Q687	8-729-905-35	TRANSISTOR 2SC4081-R
Q690	8-729-162-44	TRANSISTOR 2SB624-BV4
Q691	8-729-905-18	TRANSISTOR DTC144EU
Q692	8-729-905-18	TRANSISTOR DTC144EU
Q693	8-729-905-35	TRANSISTOR 2SC4081-R
Q694	8-729-905-35	TRANSISTOR 2SC4081-R
Q695	8-729-905-12	TRANSISTOR DTA144EU
Q696	8-729-905-18	TRANSISTOR DTC144EU
Q697	8-729-905-35	TRANSISTOR 2SC4081-R
Q698	8-729-903-10	TRANSISTOR FMW1
Q700	8-729-202-38	TRANSISTOR 2SC3326N
Q701	8-729-905-35	TRANSISTOR 2SC4081-R
Q702	8-729-905-35	TRANSISTOR 2SC4081-R
Q703	8-729-903-10	TRANSISTOR FMW1
Q705	8-729-905-12	TRANSISTOR DTA144EU
Q707	8-729-904-20	TRANSISTOR FMA2
Q708	8-729-904-07	TRANSISTOR FMG2
Q711	8-729-905-12	TRANSISTOR DTA144EU
Q712	8-729-905-12	TRANSISTOR DTA144EU
Q715	8-729-905-18	TRANSISTOR DTC144EU
Q717	8-729-905-23	TRANSISTOR 2SA1576-R
Q719	8-729-905-18	TRANSISTOR DTC144EU
Q721	8-729-202-38	TRANSISTOR 2SC3326N
Q722	8-729-905-35	TRANSISTOR 2SC4081-R
Q724	8-729-905-23	TRANSISTOR 2SA1576-R
Q727	8-729-905-45	TRANSISTOR DTA143EU
Q728	8-729-905-23	TRANSISTOR 2SA1576-R
Q729	8-729-905-35	TRANSISTOR 2SC4081-R
Q730	8-729-905-23	TRANSISTOR 2SA1576-R
Q731	8-729-905-12	TRANSISTOR DTA144EU
Q732	8-729-905-35	TRANSISTOR 2SC4081-R
Q737	8-729-905-35	TRANSISTOR 2SC4081-R
Q738	8-729-905-35	TRANSISTOR 2SC4081-R
Q742	8-729-905-23	TRANSISTOR 2SA1576-R
Q743	8-729-905-35	TRANSISTOR 2SC4081-R
Q744	8-729-905-35	TRANSISTOR 2SC4081-R
Q745	8-729-905-18	TRANSISTOR DTC144EU
Q746	8-729-162-44	TRANSISTOR 2SB624-BV4
Q747	8-729-905-23	TRANSISTOR 2SA1576-R
Q748	8-729-905-35	TRANSISTOR 2SC4081-R
Q752	8-729-905-23	TRANSISTOR 2SA1576-R
Q753	8-729-904-20	TRANSISTOR FMA2
Q757	8-729-905-35	TRANSISTOR 2SC4081-R
Q758	8-729-905-23	TRANSISTOR 2SA1576-R
Q759	8-729-905-35	TRANSISTOR 2SC4081-R
Q760	8-729-905-12	TRANSISTOR DTA144EU
Q761	8-729-905-18	TRANSISTOR DTC144EU
Q762	8-729-905-18	TRANSISTOR DTC144EU
Q763	8-729-905-18	TRANSISTOR DTC144EU
Q764	8-729-905-35	TRANSISTOR 2SC4081-R
Q765	8-729-905-35	TRANSISTOR 2SC4081-R
Q766	8-729-905-23	TRANSISTOR 2SA1576-R
Q767	8-729-905-18	TRANSISTOR DTC144EU
Q770	8-729-101-07	TRANSISTOR 2SB798-L
Q771	8-729-905-35	TRANSISTOR 2SC4081-R
Q772	8-729-905-12	TRANSISTOR DTA144EU
Q773	8-729-905-12	TRANSISTOR DTA144EU
Q774	8-729-905-35	TRANSISTOR 2SC4081-R
Q775	8-729-905-18	TRANSISTOR *DTC144EU*
Q776	8-729-905-12	TRANSISTOR DTA144EU
Q777	8-729-905-23	TRANSISTOR 2SA1576-R
Q786	8-729-905-18	TRANSISTOR DTC144EU

VA−45 BOARD
CONDUCTOR SIDE)



VA-45 (Y/CHROMA SIGNAL PROCESS, AUDIO SIGNAL PROCESS) SCHEMATIC DIAGRAM

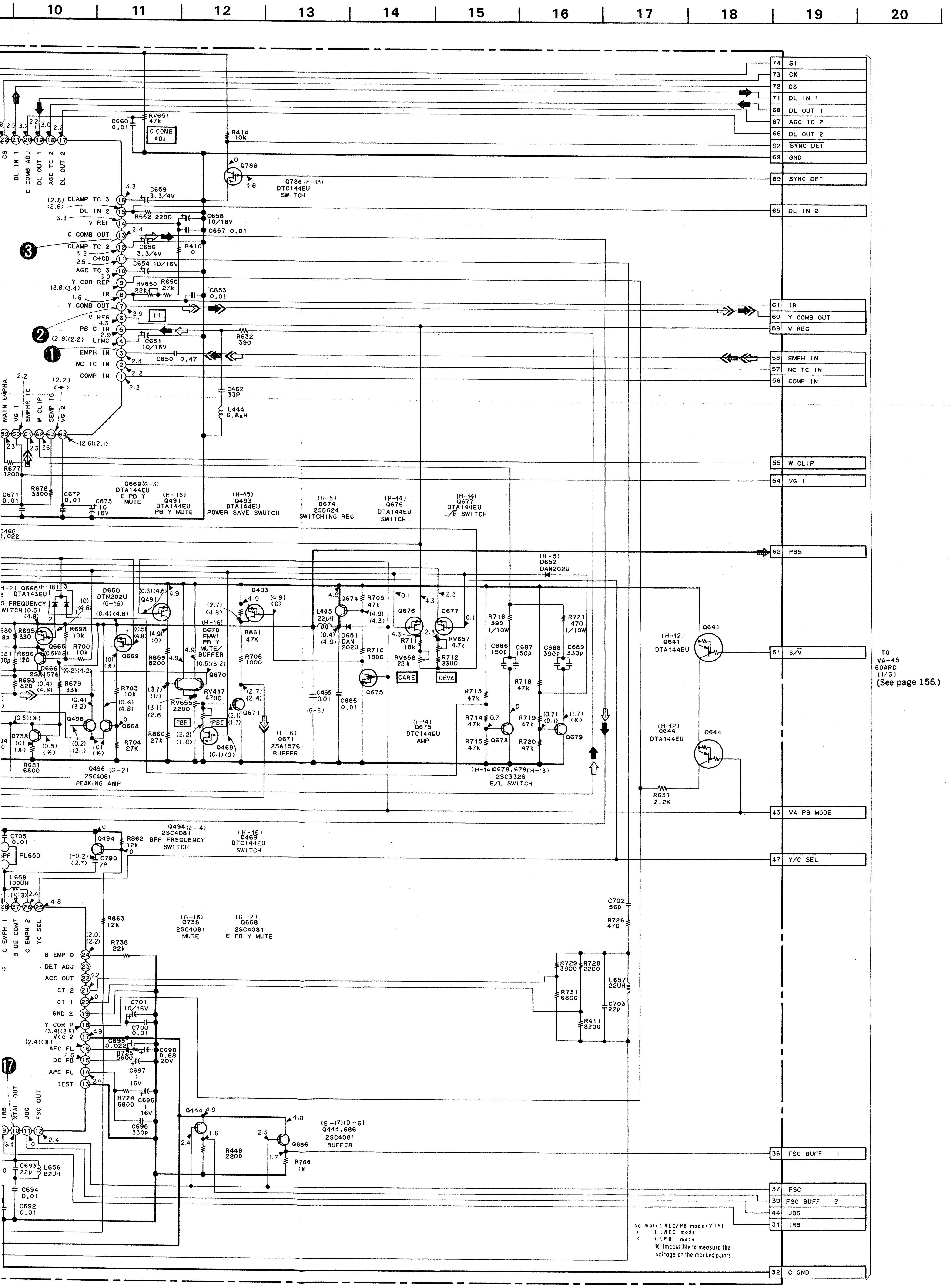
—Ref. No. VA-45 BOARD : 1000 series—



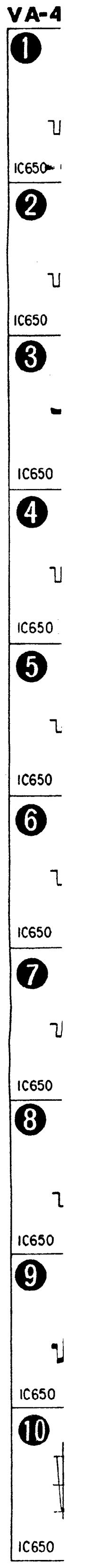
VA-45 BOARD(1/3)
TO VA-45 BOARD (1/3)
(See page 156.)
SYNC OUT 75
DDS 76
Y OUT 77
MASK 78
Y IN 79
VD 80
V IN 1 81
V IN 2 83
INV IN 1
V VCC 28
V OUT 2
V GND 3
PB RF IN 15
Y RF OUT 11
DO DET 16
DEM IN 13
DEM OUT 9
DOP 41
DEEMP IN 7
C IN 23
D CLIP 50
PB Y 6
VA SW P 14
H CHG 48
DUB AREA 88
E/LN(L) 8
L/UN(E) 10
Y VCC 26
SP·LP 84
Y GND 24
PEAKING IN 4
PEAKING OUT 5
PAO C SELL 82
REC C RF 19
PB C RF 17
C MUTE 18
C SEL 20
C OUT 38
EXT C IN 21
DOP 22
BF OUT 34
C VCC 30
EE LEVEL
IC650
CXA1207R
Y PROCESS
IC651
CXA1208R
CHROMA PROCESS
Q655 DTA144EU
Q658 2SC4081 L MODE EQ
Q660 2SC4081 Q661 DTA144EU — L PB Y MUTE —
Q657 2SC4081 DC BIAS SEP
Q662 DTA144EU Q666 2SA1576 Q665 DTA143EU —PEAKING FREQUENCY SWITCH
Q490, 659, 737 2SC4081 PEAKING AMP
Q681 2SC4081
Q683 2SA1576 BUFFER
Q687 2SC4081 BUFFER
Q767 DTC144EU ATT ON/OFF SWITCH
FL651
FL650
CF650
X650
L443 10μH
CLAMP TC 1
V IN 2
AGC TC 1
INV IN
V VCC
V OUT
V GND
I MIN
PB RF IN
RF AGC TC
Y RF OUT
DO DET
DEM IN
RF VCC
DEM OUT
DOP
C MUTE
C OUT
C SELL
REC C OUT
PAL
PB RF IN
GND 1
EXTC IN
VCO OUT
C SYNC
SW P
HHK C

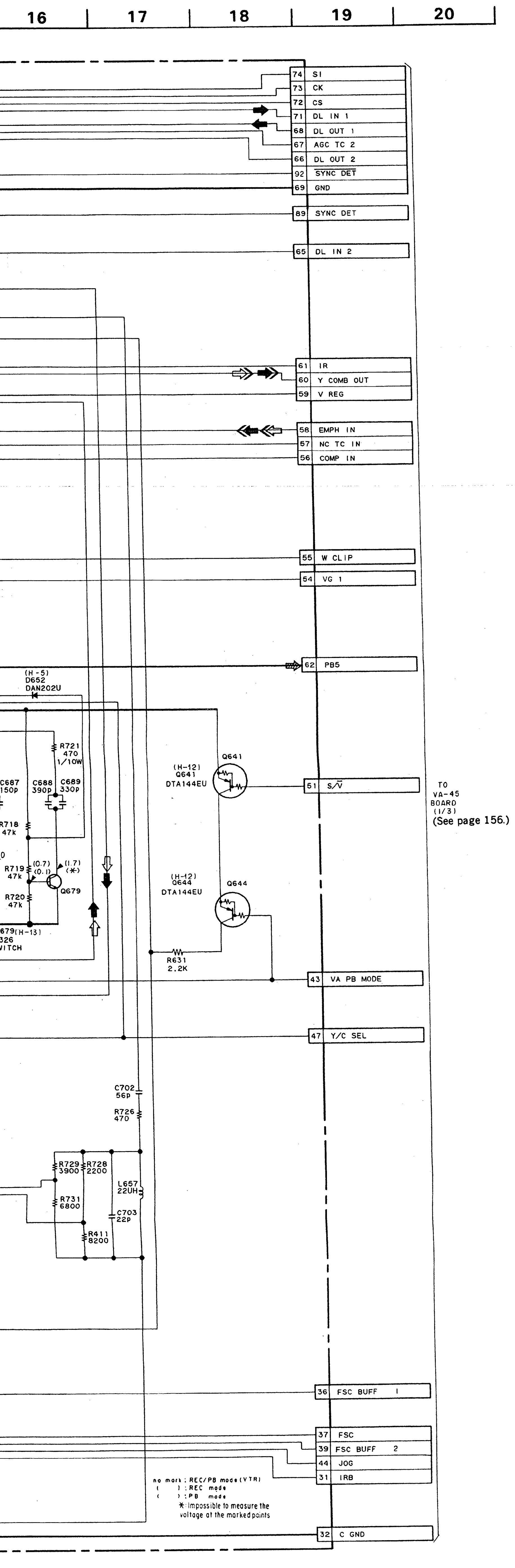
- Signal path

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	⋙
PB	⇨	⇨	⇨

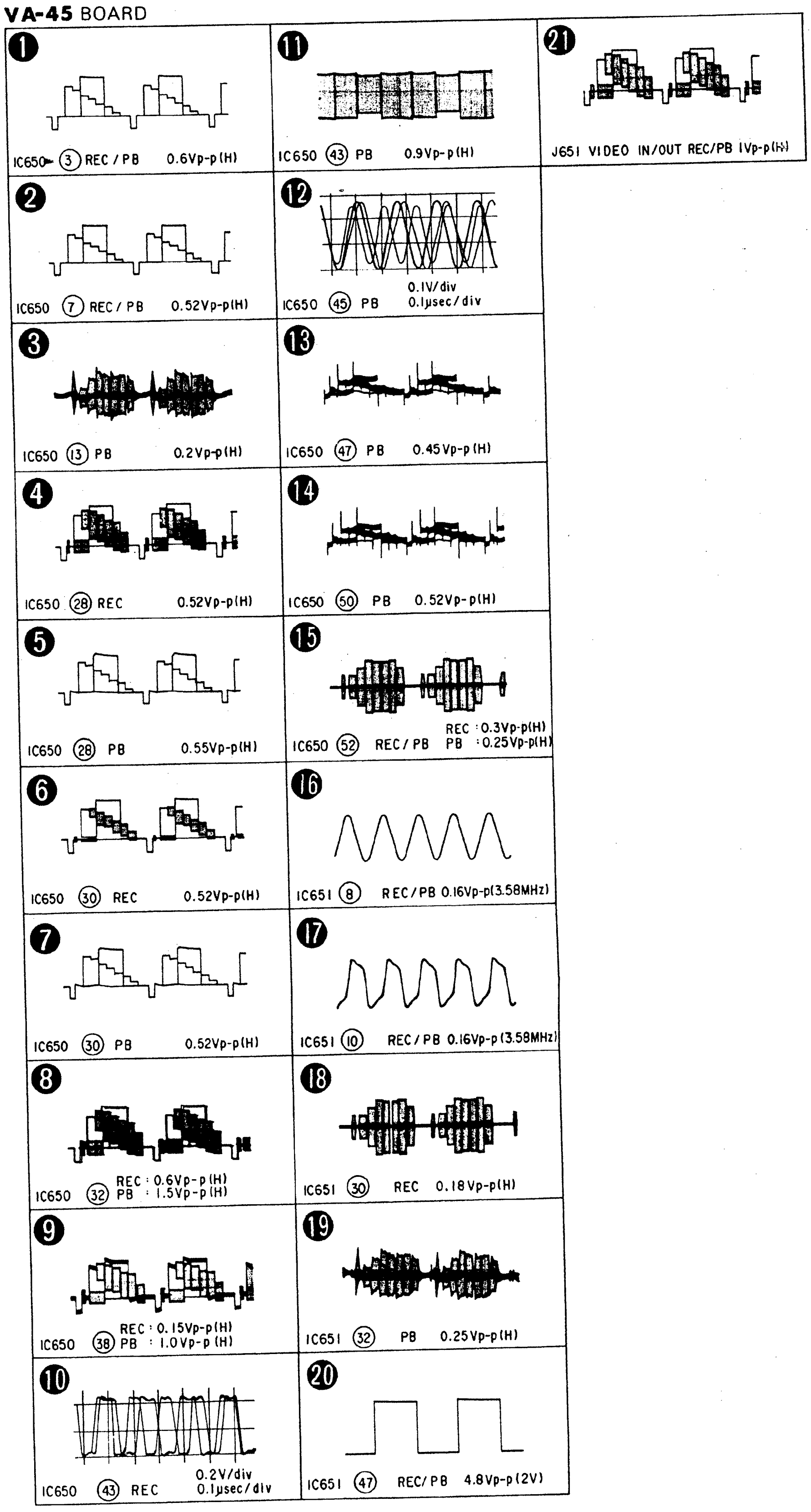

10
11
12
13
14
15
16
17
18
19
20
74 SI
73 CK
72 CS
71 DL IN 1
68 DL OUT 1
67 AGC TC 2
66 DL OUT 2
92 SYNC DET
69 GND
89 SYNC DET
65 DL IN 2
61 IR
60 Y COMB OUT
59 V REG
58 EMPH IN
57 NC TC IN
56 COMP IN
55 W CLIP
54 VG 1
62 PB5
51 S/V
43 VA PB MODE
47 Y/C SEL
36 FSC BUFF 1
37 FSC
39 FSC BUFF 2
44 JOG
31 IRB
32 C GND
TO VA-45 BOARD (1/3) (See page 156.)
RV651 47k
C660 0.01
C COMB ADJ
R414 10k
Q786
Q786 (F-13) DTC144EU SWITCH
CLAMP TC 3
DL IN 2
V REF
C COMB OUT
CLAMP TC 2
C+CD
AGC TC 3
Y COR REP
IR
Y COMB OUT
V REG
PB C IN
LIMC
EMPH IN
NC TC IN
COMP IN
C659 3.3/4V
R652 2200
C658 10/16V
C657 0.01
C656 3.3/4V
R410 0
C654 10/16V
RV650 22k
R650 27k
C653 0.01
IR
R632 390
C651 10/16V
C650 0.47
C462 33P
L444 6.8µH
MAIN EMPHA
VG 1
EMPHR TC
W CLIP
SEMP TC
VG 2
R677 1200
R678 3300
C671 0.01
C672 0.01
C673 10 16V
C466 .022
Q669 (G-3) DTA144EU E-PB Y MUTE
(H-16) Q491 DTA144EU PB Y MUTE
(H-15) Q493 DTA144EU POWER SAVE SWUTCH
(H-5) Q674 2SB624 SWITCHING REG
(H-14) Q676 DTA144EU SWITCH
(H-14) Q677 DTA144EU L/E SWITCH
(H-5) D652 DAN202U
Q665 DTA143EU
G FREQUENCY SWITCH
D650 DTN202U (G-16)
Q491
Q493
Q674
R709 47k
L445 22µH
D651 DAN 202U
R710 1800
Q676
Q677
R711 18k
RV656 22k
RV657 4.7k
R712 3300
CARE
DEVA
R716 390 1/10W
R721 470 1/10W
C686 150p
C687 150p
C688 390p
C689 330p
R718 47k
(H-12) Q641 DTA144EU
Q641
R695 330
R696 120
R698 10k
R700 10k
Q665
Q666 2SA1576
Q669
R693 820
R679 33k
R703 10k
R859 8200
(H-16) Q670 FMW1 PB Y MUTE/ BUFFER
Q670
R861 47K
R705 1000
RV417 4700
RV655 2200
PBE
Q671
Q469
C465 0.01
C685 0.01
Q675
R713 47k
R714 47k
R715 47k
Q678
R719 47k
R720 47k
Q679
(H-12) Q644 DTA144EU
Q644
R631 2.2K
Q496
Q668
Q738
R704 27K
R860 27k
R681 6800
Q496 (G-2) 2SC4081 PEAKING AMP
(I-16) Q671 2SA1576 BUFFER
(I-14) Q675 DTC144EU AMP
(H-14) Q678, 679 (H-13) 2SC3326 E/L SWITCH
C705 0.01
FL650
Q494
R862 12k
C790 7P
Q494 (E-4) 2SC4081 BPF FREQUENCY SWITCH
(H-16) Q469 DTC144EU SWITCH
L658 100UH
C EMPH 1
B DE CONT
C EMPH 2
YC SEL
R863 12k
(G-16) Q738 2SC4081 MUTE
(G-2) Q668 2SC4081 E-PB Y MUTE
C702 56P
R726 470
R735 22k
B EMP O
DET ADJ
ACC OUT
CT 2
CT 1
GND 2
Y COR P
Vcc 2
AFC FL
DC FB
APC FL
TEST
C701 10/16V
C700 0.01
C699 0.022
R725 5600
C698 0.68 20V
C697 1 16V
R724 6800
C696 1 16V
C695 330p
R729 3900
R728 2200
R731 6800
L657 22UH
C703 22P
R411 8200
IRB
XTAL OUT
JOG
FSC OUT
Q444
R448 2200
Q686
R766 1k
(E-17)(D-6) Q444, 686 2SC4081 BUFFER
C693 22P
L656 82UH
C694 0.01
C692 0.01

no mark : REC/PB mode (VTR)
( ) : REC mode
( ) : PB mode
✻ : Impossible to measure the voltage at the marked points

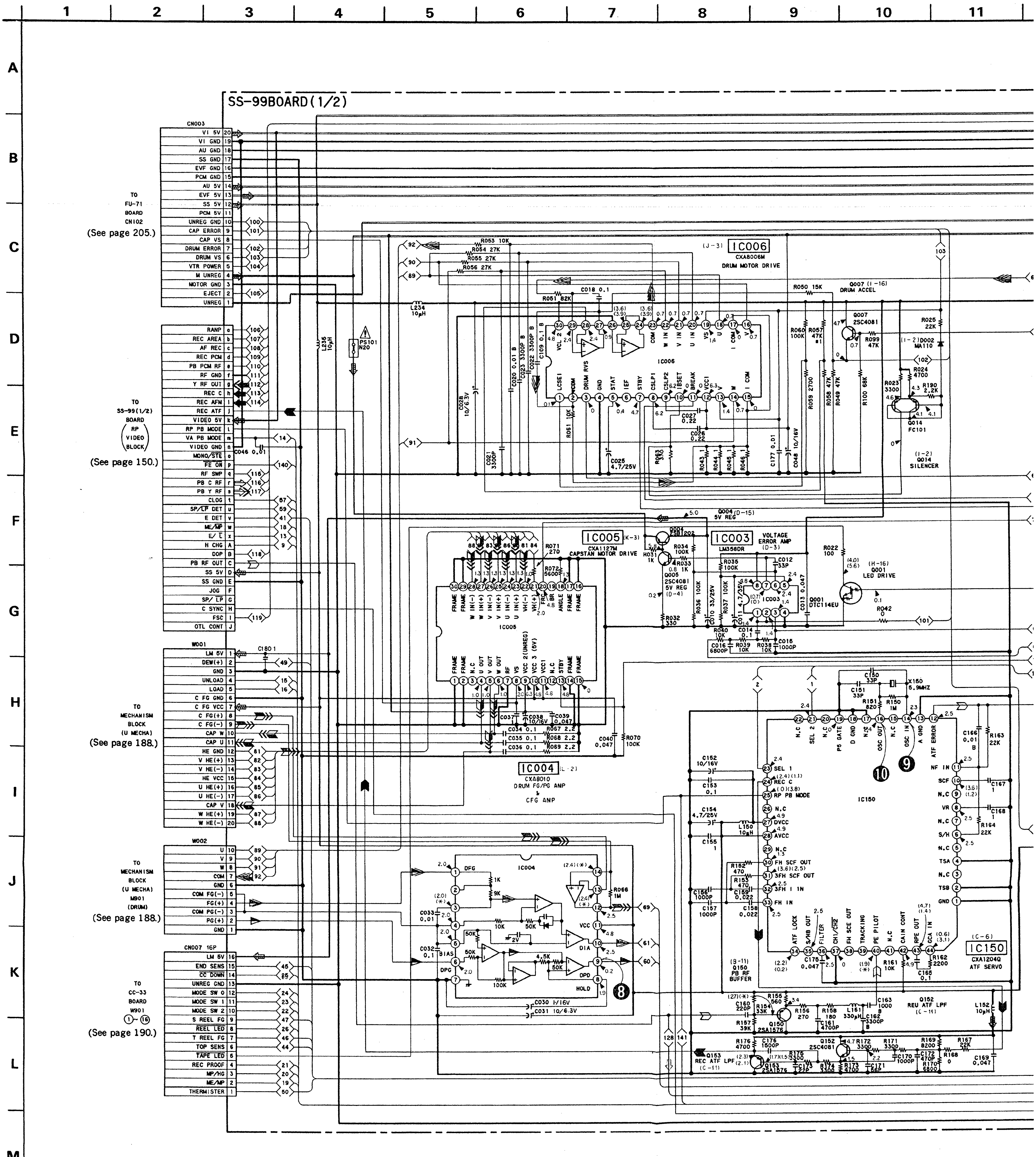

VA-4
❶
IC650
❷
IC650
❸
IC650
❹
IC650
❺
IC650
❻
IC650
❼
IC650
❽
IC650
❾
IC650
❿
IC650


16
17
18
19
20
74 SI
73 CK
72 CS
71 DL IN 1
68 DL OUT 1
67 AGC TC 2
66 DL OUT 2
92 SYNC DET
69 GND
89 SYNC DET
65 DL IN 2
61 IR
60 Y COMB OUT
59 V REG
58 EMPH IN
57 NC TC IN
56 COMP IN
55 W CLIP
54 VG 1
62 PB5
(H-5)
D652
DAN202U
R721
470
1/10W
C687
150p
C688
390p
C689
330p
R718
47k
R719
47k
(0.7)
(0.1)
(1.7)
(*)
Q679
R720
47k
679(H-13)
326
ITCH
(H-12)
Q641
DTA144EU
Q641
(H-12)
Q644
DTA144EU
Q644
R631
2.2K
51 S/V̄
TO
VA-45
BOARD
(1/3)
(See page 156.)
43 VA PB MODE
47 Y/C SEL
C702
56p
R726
470
R729
3900
R728
2200
L657
22UH
R731
6800
C703
22P
R411
8200
36 FSC BUFF 1
37 FSC
39 FSC BUFF 2
44 JOG
31 IRB
no mark : REC/PB mode (VTR)
( ) : REC mode
( ) : PB mode
*: Impossible to measure the voltage at the marked points
32 C GND

VA-45 BOARD


❶
IC650 ③ REC / PB 0.6Vp-p(H)
⓫
IC650 (43) PB 0.9Vp-p(H)
㉑
J651 VIDEO IN/OUT REC/PB 1Vp-p(H)
❷
IC650 ⑦ REC / PB 0.52Vp-p(H)
⓬
IC650 (45) PB
0.1V/div
0.1μsec/div
❸
IC650 ⑬ PB 0.2Vp-p(H)
⓭
IC650 (47) PB 0.45Vp-p(H)
❹
IC650 ㉘ REC 0.52Vp-p(H)
⓮
IC650 (50) PB 0.52Vp-p(H)
❺
IC650 ㉘ PB 0.55Vp-p(H)
⓯
IC650 (52) REC / PB
REC : 0.3Vp-p(H)
PB : 0.25Vp-p(H)
❻
IC650 ㉚ REC 0.52Vp-p(H)
⓰
IC651 ⑧ REC/PB 0.16Vp-p(3.58MHz)
❼
IC650 ㉚ PB 0.52Vp-p(H)
⓱
IC651 ⑩ REC / PB 0.16Vp-p(3.58MHz)
❽
IC650 ㉜
REC : 0.6Vp-p(H)
PB : 1.5Vp-p(H)
⓲
IC651 ㉚ REC 0.18Vp-p(H)
❾
IC650 ㊳
REC : 0.15Vp-p(H)
PB : 1.0Vp-p(H)
⓳
IC651 ㉜ PB 0.25Vp-p(H)
❿
IC650 (43) REC
0.2V/div
0.1μsec/div
⓴
IC651 (47) REC/PB 4.8Vp-p(2V)

SS-99 (SERVO, SYSTEM CONTROL, REC/PB AMP) SCHEMATIC DIAGRAM
—Ref. No. SS-99 BOARD : 2000 series—



1
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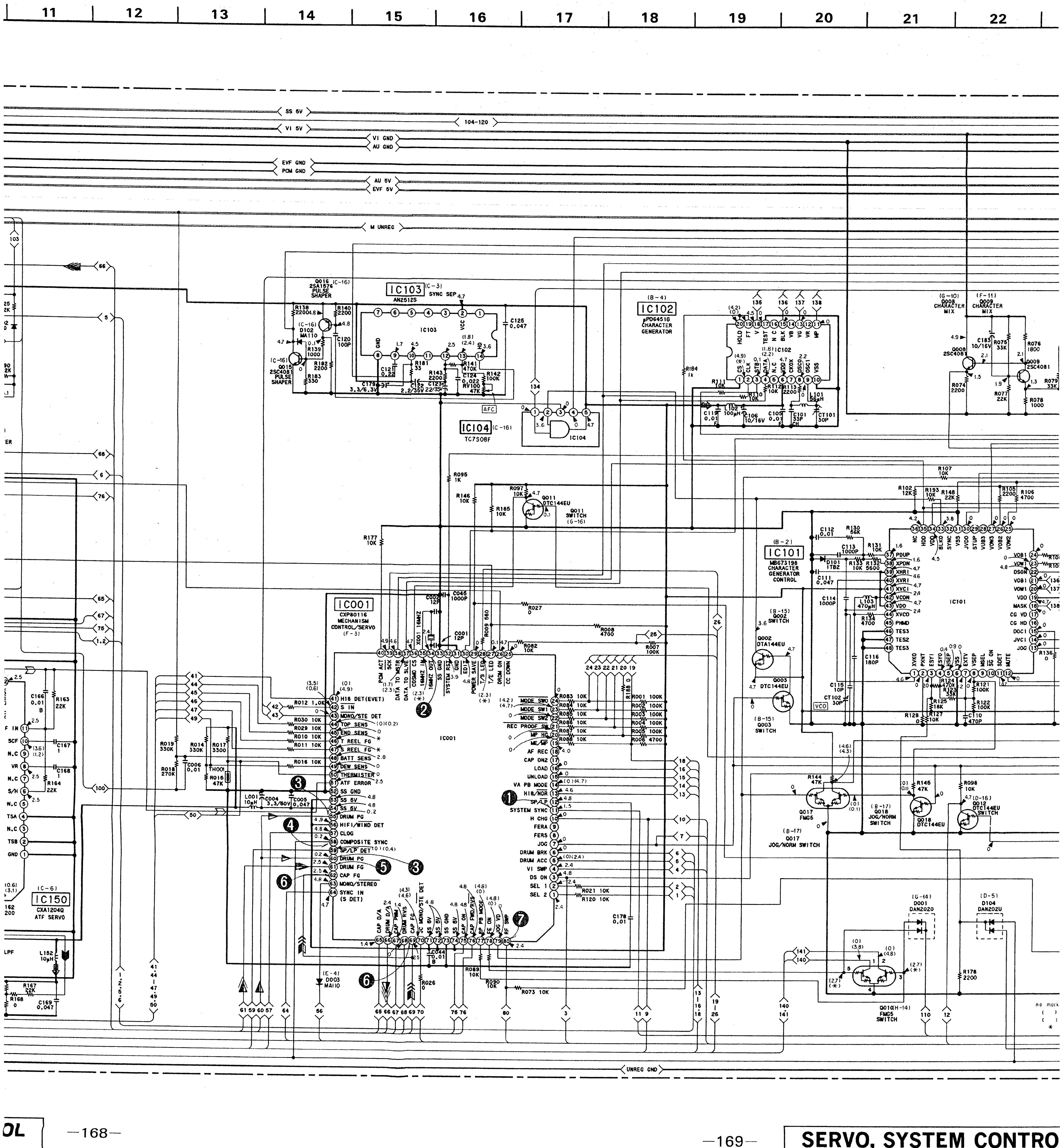
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
SS-99BOARD(1/2)
CN003
TO FU-71 BOARD CN102
(See page 205.)
TO SS-99(1/2) BOARD (RP VIDEO BLOCK)
(See page 150.)
W001
TO MECHANISM BLOCK (U MECHA)
(See page 188.)
W002
TO MECHANISM BLOCK (U MECHA) M901 (DRUM)
(See page 188.)
CN007 16P
TO CC-33 BOARD W901 ①-⑯
(See page 190.)
IC006
CXA8006M
DRUM MOTOR DRIVE
IC005
CXA1127M
CAPSTAN MOTOR DRIVE
IC003
LM358DR
VOLTAGE ERROR AMP
IC004
CXA8010
DRUM FG/PG AMP & CFG AMP
IC150
CXA1204Q
ATF SERVO
Q007 2SC4081 DRUM ACCEL
Q014 FC101 SILENCER
Q004 2SB1202 5V REG
Q005 2SC4081 5V REG
Q001 DTC114EU LED DRIVE
Q150 2SA1576 PB RF BUFFER
Q152 2SC4081 REU ATF LPF
Q153 2SA1576 REC ATF LPF
X150 6.9MHZ
PS101 N20

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

• Signal path

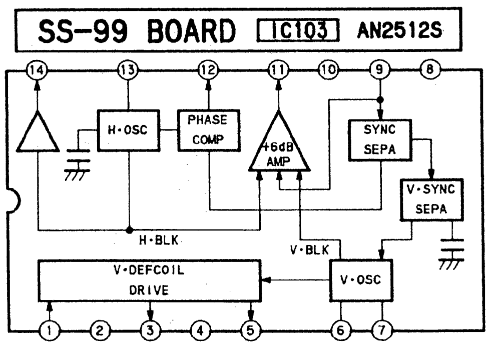
	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo(speed and phase)		▷	
Capstan speed servo		▷	
Capstan phase servo	➡	⇨	⇨
Capstan servo(speed and phase)		⇨	
Ref.signal	➡	⇨	⇨



11
12
13
14
15
16
17
18
19
20
21
22
SS 5V
VI 5V
104-120
VI GND
AU GND
EVF GND
PCM GND
AU 5V
EVF 5V
M UNREG
IC103 (C-3) SYNC SEP AN2512S
Q016 (C-16) 2SA1576 PULSE SHAPER
Q015 (C-16) 2SC4081 PULSE SHAPER
D102 MA110
IC104 (C-16) TC7S08F
AFC
IC102 (B-4) μPD6451G CHARACTER GENERATOR
Q008 (G-10) 2SC4081 CHARACTER MIX
Q009 (F-11) 2SC4081 CHARACTER MIX
Q011 DTC144EU SWITCH (G-16)
IC001 CXP80116 MECHANISM CONTROL/SERVO (F-3)
IC101 (B-2) MB673198 CHARACTER GENERATOR CONTROL
Q002 (B-15) DTA144EU SWITCH
Q003 (B-15) DTC144EU SWITCH
VCO
Q017 (B-17) FMG5 JOG/NORM SWITCH
Q018 (B-17) DTC144EU JOG/NORM SWITCH
Q012 (D-15) DTC144EU SWITCH
Q010 (H-14) FMG5 SWITCH
D001 (G-14) DAN202U
D104 (D-5) DAN202U
IC150 (C-6) CXA1204Q ATF SERVO
D003 (E-4) MA110
L001 10μH
L152 10μH
H18 DET(EVET)
S IN
MONO/STE DET
TOP SENS
END SENS
T REEL FG
S REEL FG
BATT SENS
DEW SENS
THERMISTER
ATF ERROR
SS GND
SS 5V
SS 5V
DRUM PG
HIFI/WIND DET
CLOG
COMPOSITE SYNC
SP/LP DET
DRUM PG
DRUM FG
CAP FG
MONO/STEREO
SYNC IN (S DET)
MODE SW0
MODE SW1
MODE SW2
REC PROOF SW
MP HC
ME/MP
AF REC
CAP ON2
LOAD
UNLOAD
VA PB MODE
H18/NOR
SP/LP
SYSTEM SYNC
H CHG
FERA
FERS
JOG
DRUM BRK
DRUM ACC
VI SWP
DS ON
SEL 1
SEL 2
UNREG GND

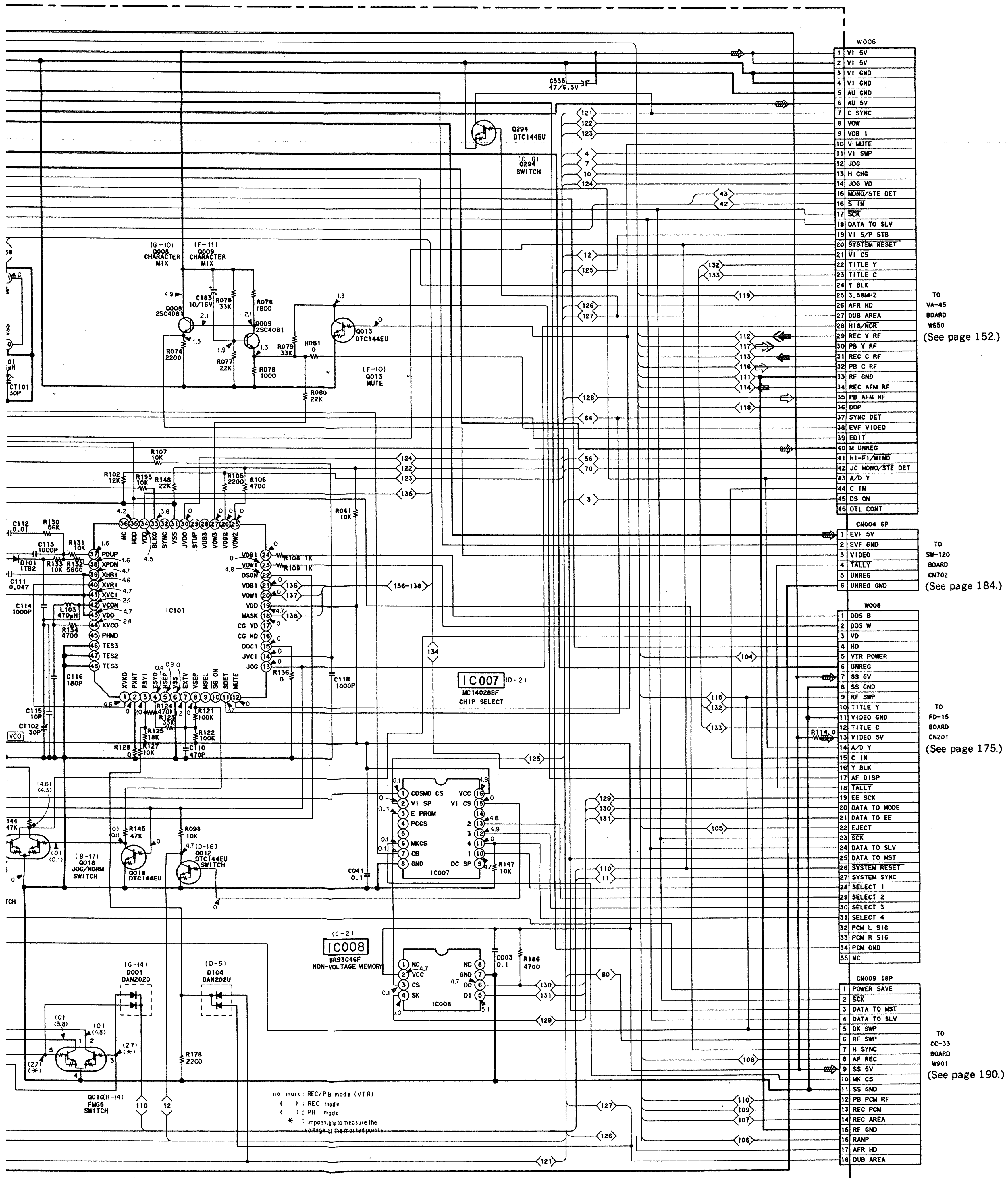
	REC	REC/PB	PB
ervo		▶	
ervo		▶	
peed and phase)		▶	
d servo		▶	
e servo	▶	▶	▷
o(speed and phase)		▶	
	▶	▶	▷

SS-99 BOARD IC103 AN2512S



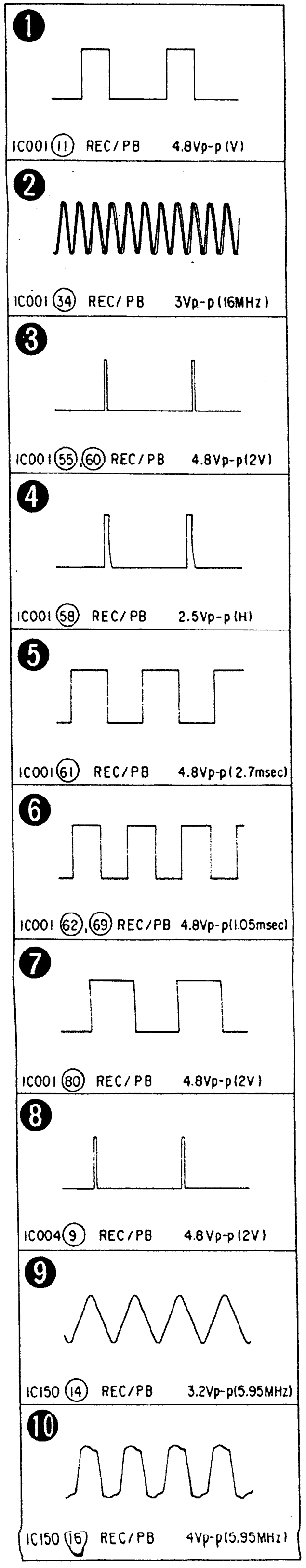
H-OSC
PHASE COMP
+6dB AMP
SYNC SEPA
V-SYNC SEPA
H-BLK
V-BLK
V-DEFCOIL DRIVE
V-OSC

20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29



W006
1 VI 5V
2 VI 5V
3 VI GND
4 VI GND
5 AU GND
6 AU 5V
7 C SYNC
8 VOW
9 VOB 1
10 V MUTE
11 VI SWP
12 JOG
13 H CHG
14 JOG VD
15 MONO/STE DET
16 S IN
17 SCK
18 DATA TO SLV
19 VI S/P STB
20 SYSTEM RESET
21 VI CS
22 TITLE Y
23 TITLE C
24 Y BLK
25 3.58MHZ
26 AFR HD
27 DUB AREA
28 HI8/NOR
29 REC Y RF
30 PB Y RF
31 REC C RF
32 PB C RF
33 RF GND
34 REC AFM RF
35 PB AFM RF
36 DOP
37 SYNC DET
38 EVF VIDEO
39 EDIT
40 M UNREG
41 HI-FI/WIND
42 JC MONO/STE DET
43 A/D Y
44 C IN
45 DS ON
46 OTL CONT
TO VA-45 BOARD W650 (See page 152.)
CN004 6P
1 EVF 5V
2 EVF GND
3 VIDEO
4 TALLY
5 UNREG
6 UNREG GND
TO SW-120 BOARD CN702 (See page 184.)
W005
1 DDS B
2 DDS W
3 VD
4 HD
5 VTR POWER
6 UNREG
7 SS 5V
8 SS GND
9 RF SWP
10 TITLE Y
11 VIDEO GND
12 TITLE C
13 VIDEO 5V
14 A/D Y
15 C IN
16 Y BLK
17 AF DISP
18 TALLY
19 EE SCK
20 DATA TO MODE
21 DATA TO EE
22 EJECT
23 SCK
24 DATA TO SLV
25 DATA TO MST
26 SYSTEM RESET
27 SYSTEM SYNC
28 SELECT 1
29 SELECT 2
30 SELECT 3
31 SELECT 4
32 PCM L SIG
33 PCM R SIG
34 PCM GND
35 NC
TO FD-15 BOARD CN201 (See page 175.)
CN009 18P
1 POWER SAVE
2 SCK
3 DATA TO MST
4 DATA TO SLV
5 DK SWP
6 RF SWP
7 H SYNC
8 AF REC
9 SS 5V
10 MK CS
11 SS GND
12 PB PCM RF
13 REC PCM
14 REC AREA
15 RF GND
16 RANP
17 AFR HD
18 DUB AREA
TO CC-33 BOARD W901 (See page 190.)
Q294 DTC144EU
(C-8) Q294 SWITCH
C336 47/6.3V
(G-10) Q008 CHARACTER MIX
(F-11) Q009 CHARACTER MIX
Q008 2SC4081
Q009 2SC4081
Q013 DTC144EU
(F-10) Q013 MUTE
IC101
IC007 (D-2) MC14028BF CHIP SELECT
(C-2) IC008 BR93C46F NON-VOLTAGE MEMORY
(B-17) Q018 JOG/NORM SWITCH
Q018 DTC144EU
(D-16) Q012 DTC144EU SWITCH
(G-14) D001 DAN202U
(D-5) D104 DAN202U
Q010(H-14) FMG5 SWITCH
no mark: REC/PB mode (VTR)
( ): REC mode
( ): PB mode
*: Impossible to measure the voltage at the marked points.

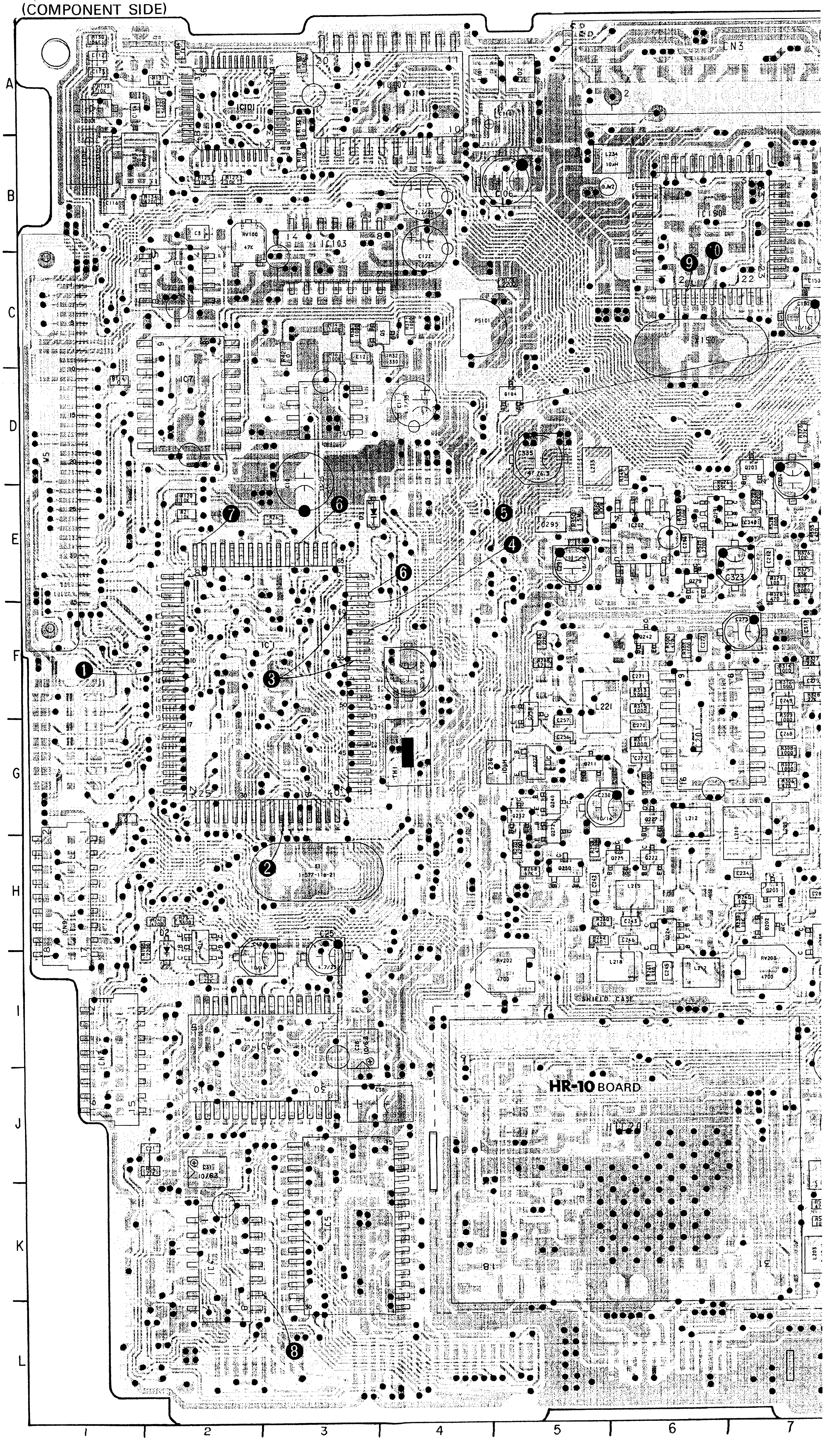
SS-99 BOARD
(SERVO, SYSTEM CONTROL)



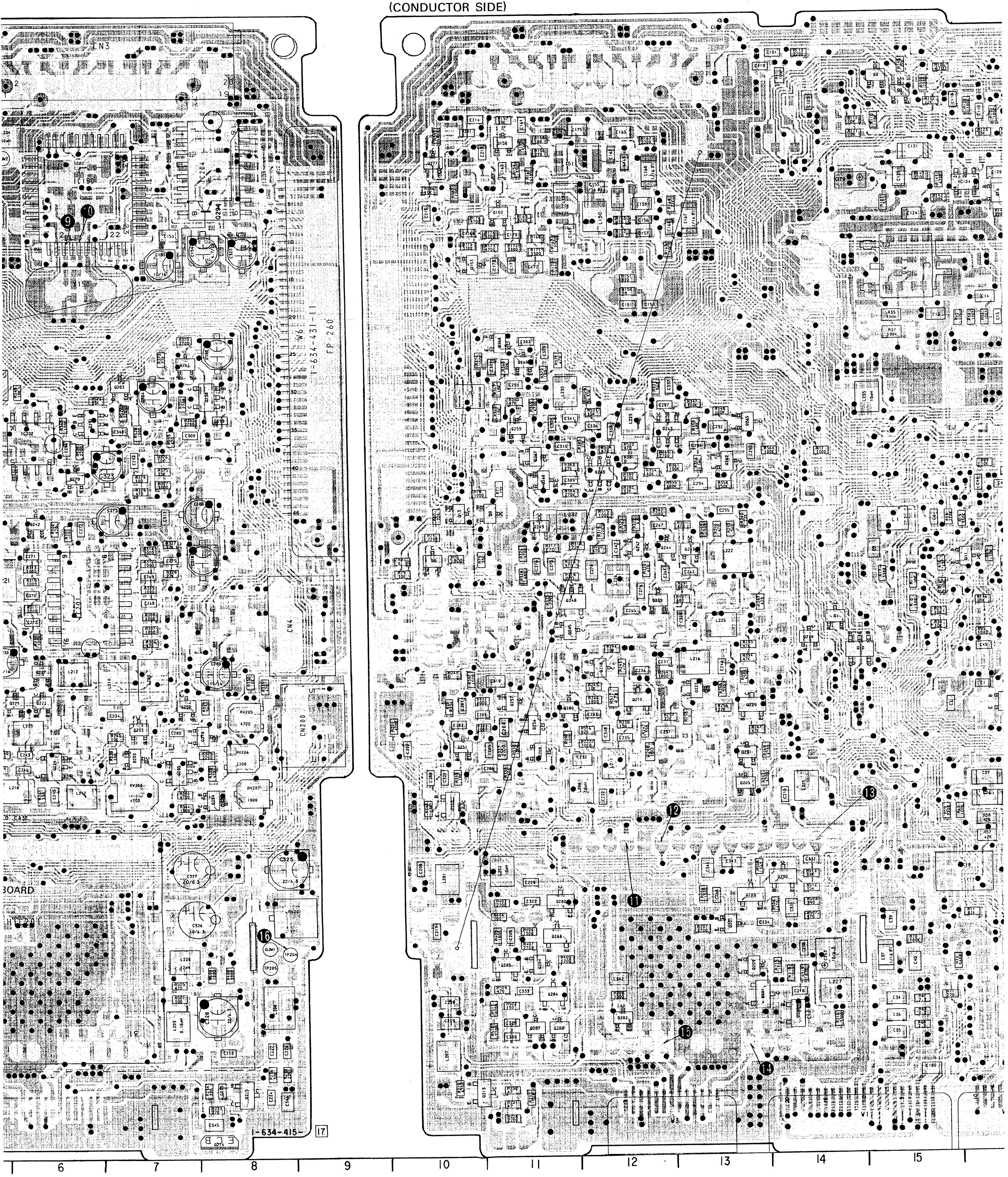
SS-99 (SERVO, SYSTEM CONTROL, REC/PB AMP) PRINTED WIRING BOARD

—Ref. No. SS-99 BOARD: 2000 series—

SS-99 BOARD
(COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
IC150
IC103
IC7
IC5
PS101
L221
L212
RV202
RV203
SHIELD CASE
HR-10 BOARD
CN3
J22
❶
❷
❸
❹
❺
❻
❼
❽
❾
❿

SS-99 BOARD
(CONDUCTOR SIDE)



6
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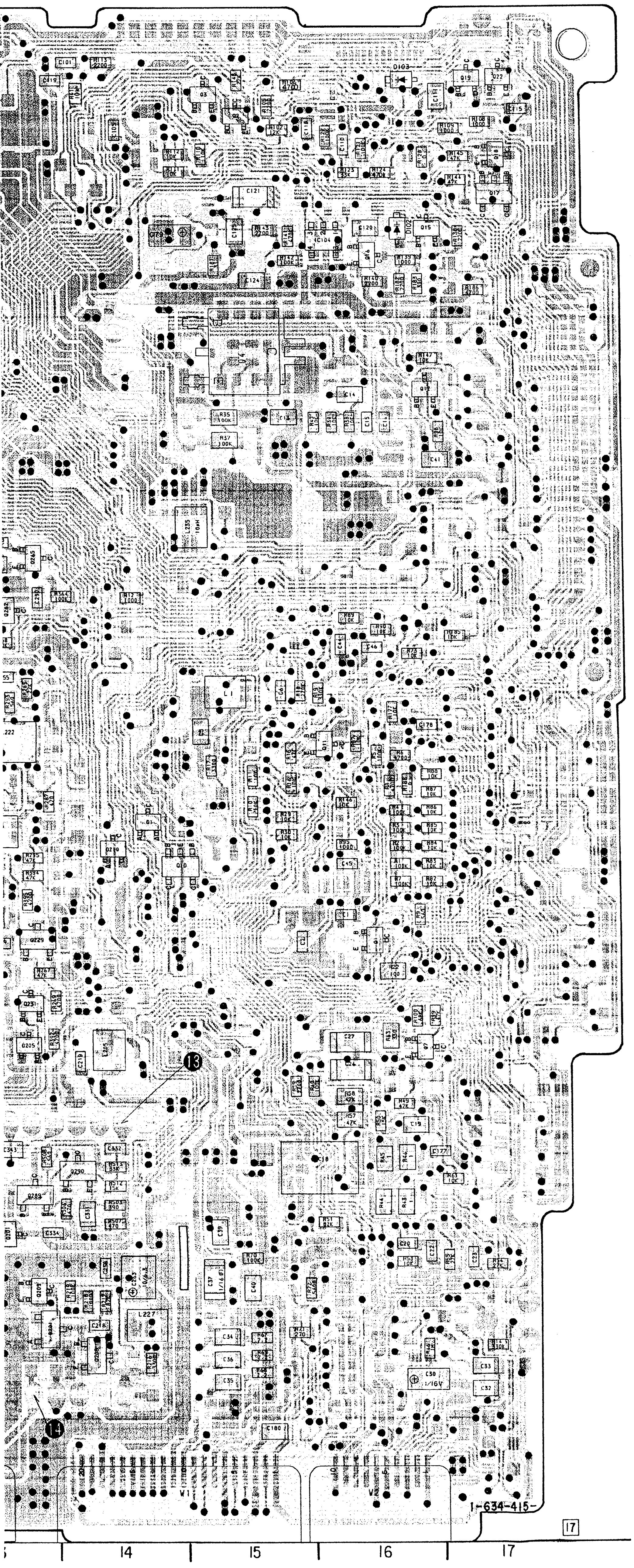
11
12
13
14
15
16
17
1-634-415-
1-634-431-11
FP 260
CN4
CN200
BOARD



DIODE

D001	8-719-941-86	DIODE DAN202U
D002	8-719-404-46	DIODE MA110
D003	8-719-404-46	DIODE MA110
D101	8-719-949-46	DIODE 1T32
D102	8-719-404-46	DIODE MA110
D104	8-719-941-86	DIODE DAN202U
D201	8-719-801-41	DIODE 1SS196
D202	8-719-941-86	DIODE DAN202U
D203	8-719-941-86	DIODE DAN202U
D205	8-719-941-86	DIODE DAN202U
D208	8-719-941-86	DIODE DAN202U
D210	8-719-941-86	DIODE DAN202U
D211	8-719-941-86	DIODE DAN202U

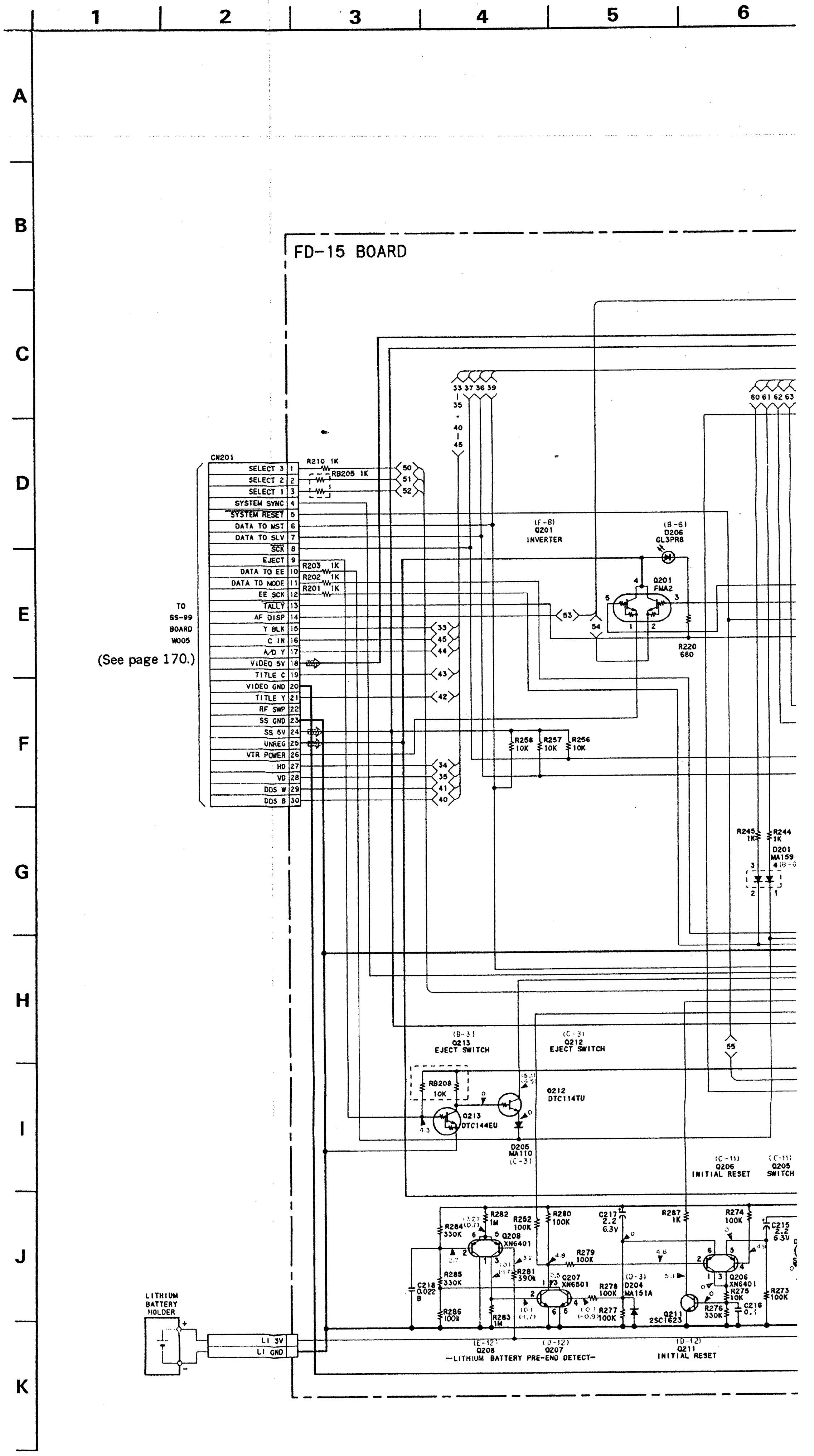
IC

IC001	8-752-814-87	IC CXP80116-659Q
IC003	8-759-998-98	IC LM358DR
IC004	8-759-148-05	IC CXA8010M
IC005	8-759-805-06	IC CXA1127M
IC006	8-759-990-55	IC CXA8006M
IC007	8-759-008-95	IC MC14028BF
IC008	8-759-720-05	IC BR93C46F
IC101	8-759-970-80	IC MB673198U
IC102	8-759-148-62	IC UPD6451GT-630
IC103	8-759-420-01	IC AN2512S
IC104	8-759-234-20	IC TC7S08F
IC150	8-759-209-53	IC CXA1204Q
IC201	8-759-012-00	IC MC10H116M
IC202	8-759-998-92	IC LM393DR
IC204	8-759-998-32	IC CXD-2107M

TRANSISTOR

Q001	8-729-907-00	TRANSISTOR DTC114EU
Q002	8-729-905-12	TRANSISTOR DTA144EU
Q003	8-729-905-18	TRANSISTOR DTC144EU
Q004	8-729-820-46	TRANSISTOR 2SB1202FAT
Q005	8-729-905-35	TRANSISTOR 2SC4081-R
Q007	8-729-905-35	TRANSISTOR 2SC4081-R
Q008	8-729-905-35	TRANSISTOR 2SC4081-R
Q009	8-729-905-35	TRANSISTOR 2SC4081-R
Q010	8-729-907-03	TRANSISTOR FMG5
Q011	8-729-905-18	TRANSISTOR DTC144EU
Q012	8-729-905-18	TRANSISTOR DTC144EU
Q013	8-729-905-18	TRANSISTOR DTC144EU
Q014	8-729-822-48	TRANSISTOR FC101
Q015	8-729-905-35	TRANSISTOR 2SC4081-R
Q016	8-729-905-23	TRANSISTOR 2SA1576-R
Q017	8-729-907-03	TRANSISTOR FMG5
Q018	8-729-905-18	TRANSISTOR DTC144EU
Q150	8-729-905-23	TRANSISTOR 2SA1576-R
Q152	8-729-905-35	TRANSISTOR 2SC4081-R
Q153	8-729-905-23	TRANSISTOR 2SA1576-R
Q201	8-729-905-35	TRANSISTOR 2SC4081-R
Q202	8-729-905-35	TRANSISTOR 2SC4081-R
Q203	8-729-905-35	TRANSISTOR 2SC4081-R
Q208	8-729-216-22	TRANSISTOR 2SA1162
Q209	8-729-905-18	TRANSISTOR DTC144EU
Q213	8-729-216-22	TRANSISTOR 2SA1162
Q214	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q215	8-729-216-22	TRANSISTOR 2SA1162
Q217	8-729-102-07	TRANSISTOR 2SC2223-F13
Q218	8-729-905-35	TRANSISTOR 2SC4081-R
Q222	8-729-905-18	TRANSISTOR DTC144EU
Q223	8-729-905-35	TRANSISTOR 2SC4081-R
Q224	8-729-904-07	TRANSISTOR FMG2
Q225	8-729-905-12	TRANSISTOR DTA144EU
Q227	8-729-905-35	TRANSISTOR 2SC4081-R
Q229	8-729-162-44	TRANSISTOR 2SB624-BV4
Q230	8-729-162-44	TRANSISTOR 2SB624-BV4
Q231	8-729-905-18	TRANSISTOR DTC144EU
Q232	8-729-905-18	TRANSISTOR DTC144EU
Q238	8-729-117-31	TRANSISTOR 2SC4177-L5
Q239	8-729-905-18	TRANSISTOR DTC144EU
Q240	8-729-905-18	TRANSISTOR DTC144EU
Q242	8-729-117-31	TRANSISTOR 2SC4177-L5
Q243	8-729-905-18	TRANSISTOR DTC144EU
Q244	8-729-140-63	TRANSISTOR 2SA1611-M5M6
Q245	8-729-117-31	TRANSISTOR 2SC4177-L5
Q247	8-729-905-35	TRANSISTOR 2SC4081-R
Q248	8-729-903-10	TRANSISTOR FMW1
Q249	8-729-905-18	TRANSISTOR DTC144EU
Q250	8-729-905-12	TRANSISTOR DTA144EU
Q251	8-729-905-35	TRANSISTOR 2SC4081-R
Q252	8-729-102-07	TRANSISTOR 2SC2223-F13
Q254	8-729-905-35	TRANSISTOR 2SC4081-R
Q255	8-729-904-07	TRANSISTOR FMG2
Q256	8-729-905-12	TRANSISTOR DTA144EU
Q257	8-729-905-18	TRANSISTOR DTC144EU
Q258	8-729-903-10	TRANSISTOR FMW1
Q259	8-729-905-35	TRANSISTOR 2SC4081-R
Q260	8-729-905-35	TRANSISTOR 2SC4081-R
Q261	8-729-905-23	TRANSISTOR 2SA1576-R
Q262	8-729-905-23	TRANSISTOR 2SA1576-R
Q263	8-729-907-26	TRANSISTOR IMX1
Q265	8-729-905-35	TRANSISTOR 2SC4081-R
Q266	8-729-905-35	TRANSISTOR 2SC4081-R
Q267	8-729-905-35	TRANSISTOR 2SC4081-R
Q268	8-729-905-23	TRANSISTOR 2SA1576-R
Q269	8-729-907-26	TRANSISTOR IMX1
Q272	8-729-922-94	TRANSISTOR DTC143TU
Q273	8-729-162-44	TRANSISTOR 2SB624-BV4
Q277	8-729-905-35	TRANSISTOR 2SC4081-R
Q278	8-729-905-35	TRANSISTOR 2SC4081-R
Q279	8-729-905-18	TRANSISTOR DTC144EU
Q280	8-729-905-35	TRANSISTOR 2SC4081-R
Q282	8-729-102-07	TRANSISTOR 2SC2223-F13
Q283	8-729-102-07	TRANSISTOR 2SC2223-F13
Q284	8-729-905-35	TRANSISTOR 2SC4081-R
Q285	8-729-102-07	TRANSISTOR 2SC2223-F13
Q286	8-729-105-68	TRANSISTOR 2SC3356
Q287	8-729-924-46	TRANSISTOR DTC124XU
Q288	8-729-905-12	TRANSISTOR DTA144EU
Q289	8-729-102-07	TRANSISTOR 2SC2223-F13
Q290	8-729-102-07	TRANSISTOR 2SC2223-F13
Q291	8-729-907-26	TRANSISTOR IMX1
Q294	8-729-905-18	TRANSISTOR DTC144EU

FD-15 (MODE CONTROL) SCHEMATIC DIAGRAM
—Ref. No. FD-15 BOARD : 5000 series—


1
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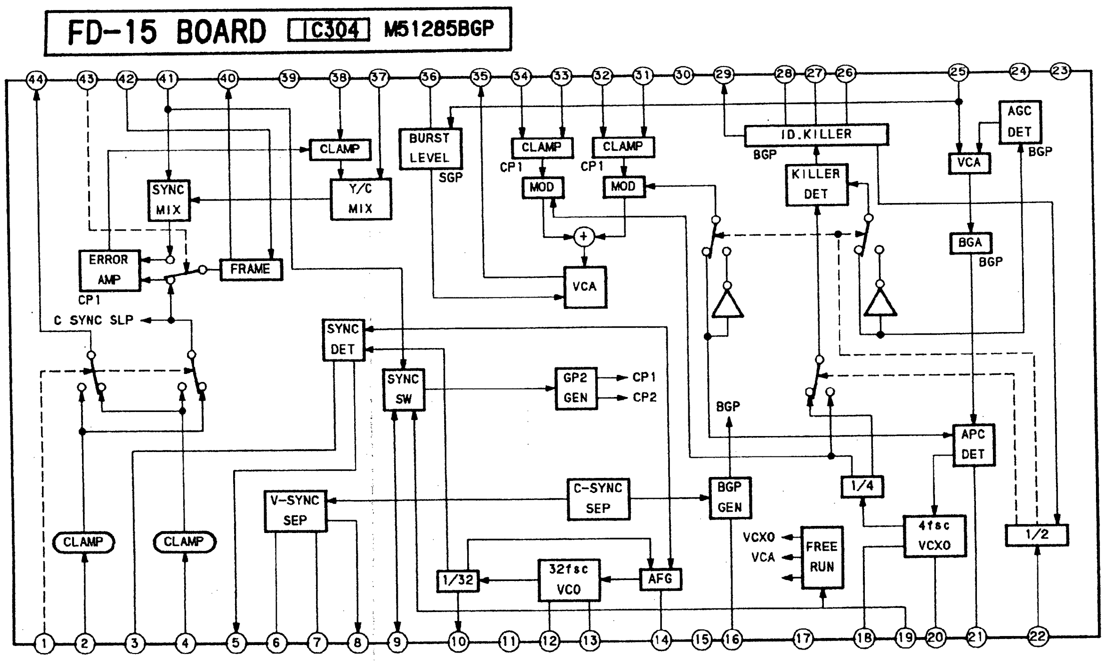
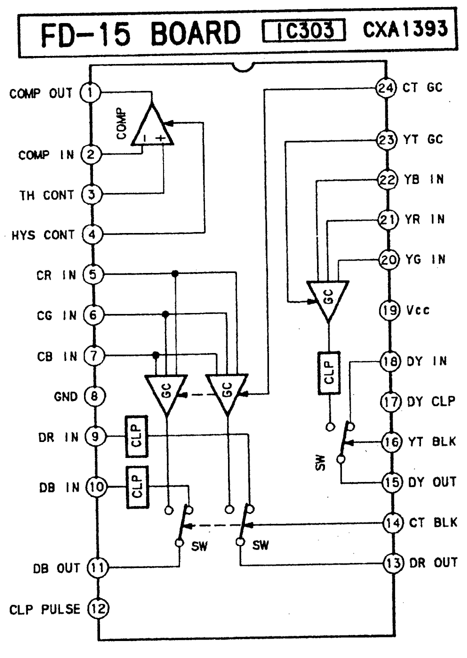
A
B
C
D
E
F
G
H
I
J
K
FD-15 BOARD
CN201
SELECT 3
SELECT 2
SELECT 1
SYSTEM SYNC
SYSTEM RESET
DATA TO MST
DATA TO SLV
SCK
EJECT
DATA TO EE
DATA TO MODE
EE SCK
TALLY
AF DISP
Y BLK
C IN
A/D Y
VIDEO 5V
TITLE C
VIDEO GND
TITLE Y
RF SWP
SS GND
SS 5V
UNREG
VTR POWER
HD
VD
DOS W
DOS B
TO SS-99 BOARD W005
(See page 170.)
R210 1K
RB205 1K
R203 1K
R202 1K
R201 1K
Q201 INVERTER
D206 GL3PR8
Q201 FMA2
R220 680
R258 10K
R257 10K
R256 10K
R245 1K
R244 1K
D201 MA159
Q213 EJECT SWITCH
Q212 EJECT SWITCH
RB208 10K
Q213 DTC144EU
Q212 DTC114TU
D205 MA110
Q206 INITIAL RESET
Q205 SWITCH
R284 330K
R282 1M
R262 100K
R280 100K
C217 2.2 6.3V
R287 1K
R274 100K
Q208 XN6401
R279 100K
R285 330K
R281 390K
Q207 XN6501
R278 100K
D204 MA151A
Q211 2SC1623
Q206 XN6401
R275 10K
R273 100K
C218 0.022 B
R286 100K
R283 1M
R277 100K
R276 330K
C216 0.1
C215 2.2 6.3V
Q208
Q207
—LITHIUM BATTERY PRE-END DETECT—
Q211 INITIAL RESET
LITHIUM BATTERY HOLDER
LI 3V
LI GND



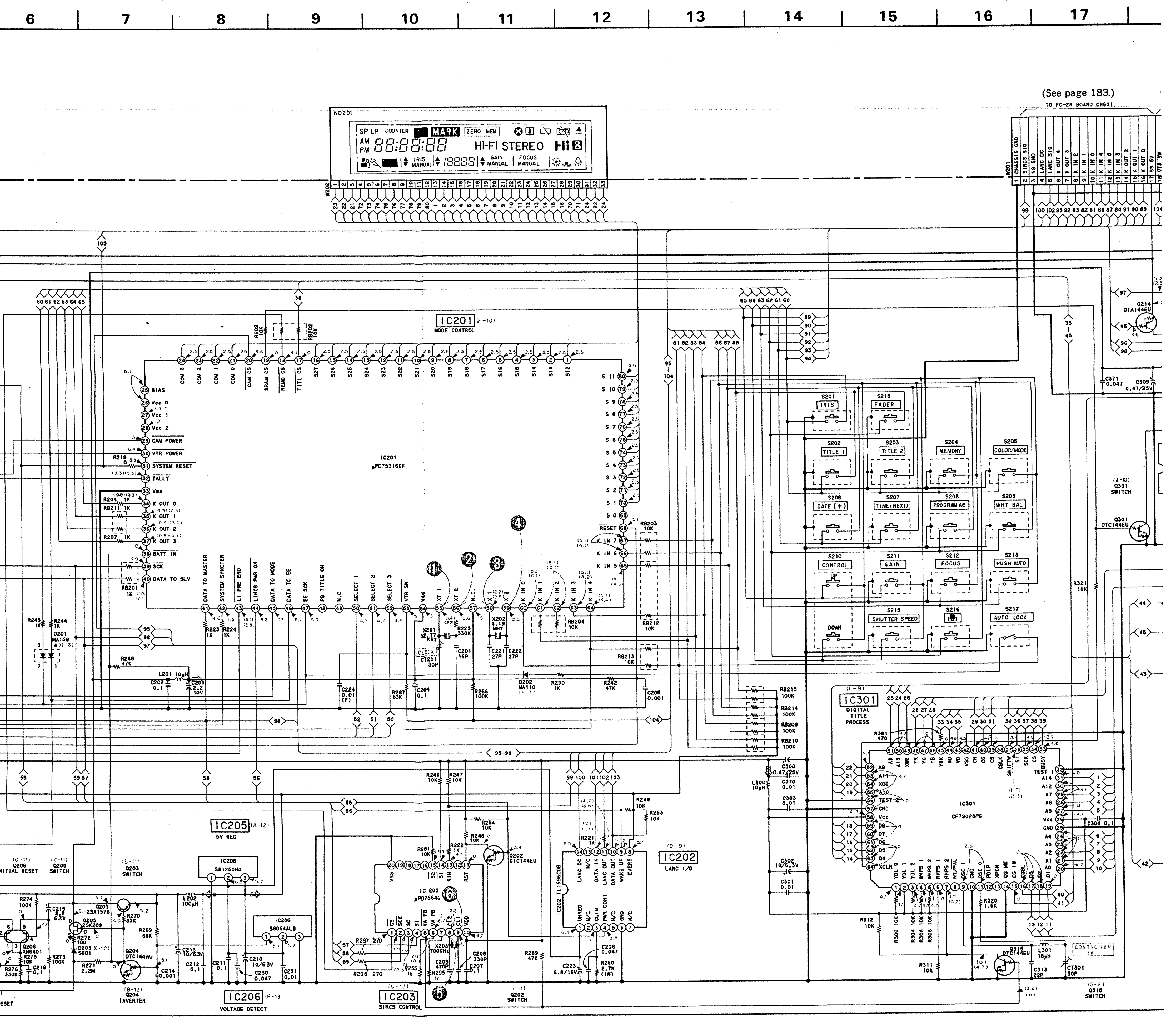
FD-15 BOARD IC304 M51285BGP

CLAMP
Y/C MIX
SYNC MIX
ERROR AMP
CP1
FRAME
C SYNC SLP
BURST LEVEL
SGP
CLAMP
CP1
MOD
VCA
ID.KILLER
BGP
KILLER DET
AGC DET
BGA
SYNC DET
SYNC SW
GP2 GEN
CP1
CP2
APC DET
1/4
V-SYNC SEP
C-SYNC SEP
BGP GEN
VCXO
FREE RUN
4fsc VCXO
1/2
1/32
32fsc VCO
AFG



FD-15 BOARD IC303 CXA1393

COMP OUT
COMP IN
TH CONT
HYS CONT
CR IN
CG IN
CB IN
GND
DR IN
DB IN
DB OUT
CLP PULSE
CT GC
YT GC
YB IN
YR IN
YG IN
Vcc
DY IN
DY CLP
YT BLK
DY OUT
CT BLK
DR OUT
COMP
GC
CLP
SW



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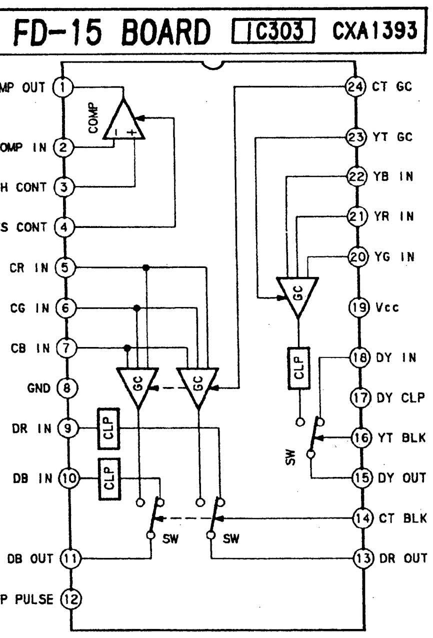
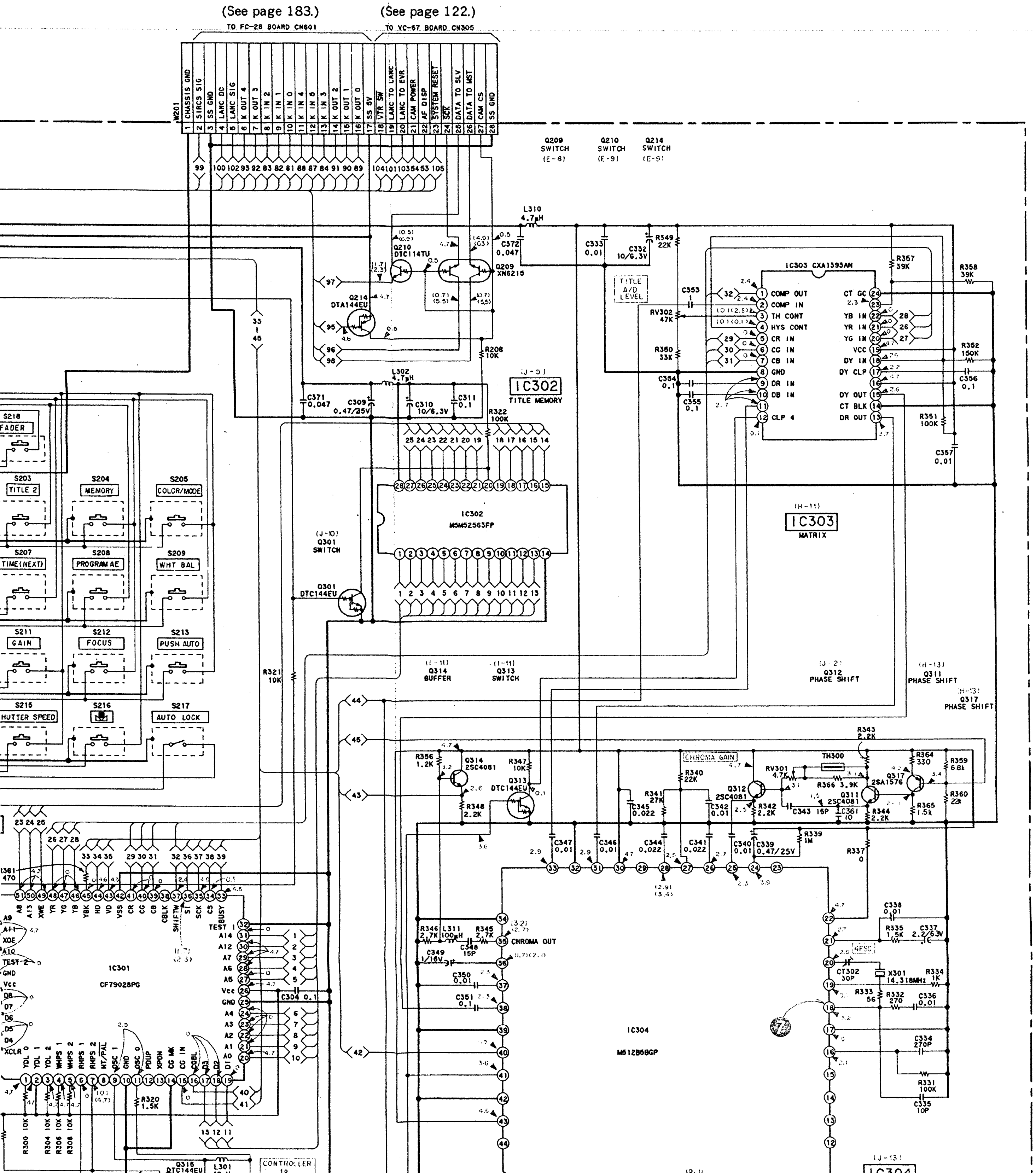
14
15
16
17
(See page 183.)
TO FC-28 BOARD CN601
ND201
SP LP COUNTER MARK ZERO MEM
HI-FI STEREO Hi8
IRIS MANUAL
GAIN MANUAL
FOCUS MANUAL
IC201 (F-10) MODE CONTROL
IC201 µPD75316GF
BIAS
Vcc 0
Vcc 1
Vcc 2
CAM POWER
VTR POWER
SYSTEM RESET
TALLY
Vss
K OUT 0
K OUT 1
K OUT 2
K OUT 3
BATT IN
SCK
DATA TO SLV
DATA TO MASTER
SYSTEM SYNCTER
L1 PRE END
LINCS PWR ON
DATA TO MODE
DATA TO EE
EE SCK
PB TITLE ON
SELECT 1
SELECT 2
SELECT 3
VTR SW
RESET
K IN 7
K IN 6
K IN 5
X201 32.77KHz
X202 4.19MHz
CLOCK
D201 MA159
D202 MA110
S201 IRIS
S218 FADER
S202 TITLE 1
S203 TITLE 2
S204 MEMORY
S205 COLOR/MODE
S206 DATE (+)
S207 TIME(NEXT)
S208 PROGRAM AE
S209 WHT BAL
S210 CONTROL
S211 GAIN
S212 FOCUS
S213 PUSH AUTO
DOWN
S215 SHUTTER SPEED
S216
S217 AUTO LOCK
IC301 DIGITAL TITLE PROCESS
IC301 CF79028FG
IC205 (A-12) 5V REG
IC205 S81250HG
IC206 S8054ALB
IC206 (B-13) VOLTAGE DETECT
IC203 µPD7564G
IC203 (C-13) SIRCS CONTROL
IC202 (D-9) LANC I/O
IC202 TL1596CDB
X203 700KHz
Q206 XN6401 INITIAL RESET
Q205 2SK209 SWITCH
Q203 2SA1576 SWITCH
Q204 DTC144WU INVERTER
Q202 DTC144EU SWITCH
Q214 DTA144EU
Q301 DTC144EU SWITCH
Q315 DTC144EU SWITCH
CONTROLLER

MODE CONTROL


FD-15 BOARD
IC303 CXA1393
MP OUT 1
OMP IN 2
H CONT 3
S CONT 4
CR IN 5
CG IN 6
CB IN 7
GND 8
DR IN 9
DB IN 10
DB OUT 11
P PULSE 12
24 CT GC
23 YT GC
22 YB IN
21 YR IN
20 YG IN
19 Vcc
18 DY IN
17 DY CLP
16 YT BLK
15 DY OUT
14 CT BLK
13 DR OUT
COMP
GC
CLP
SW

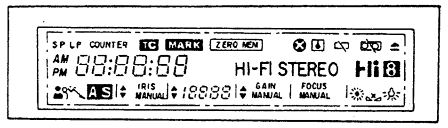
15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24

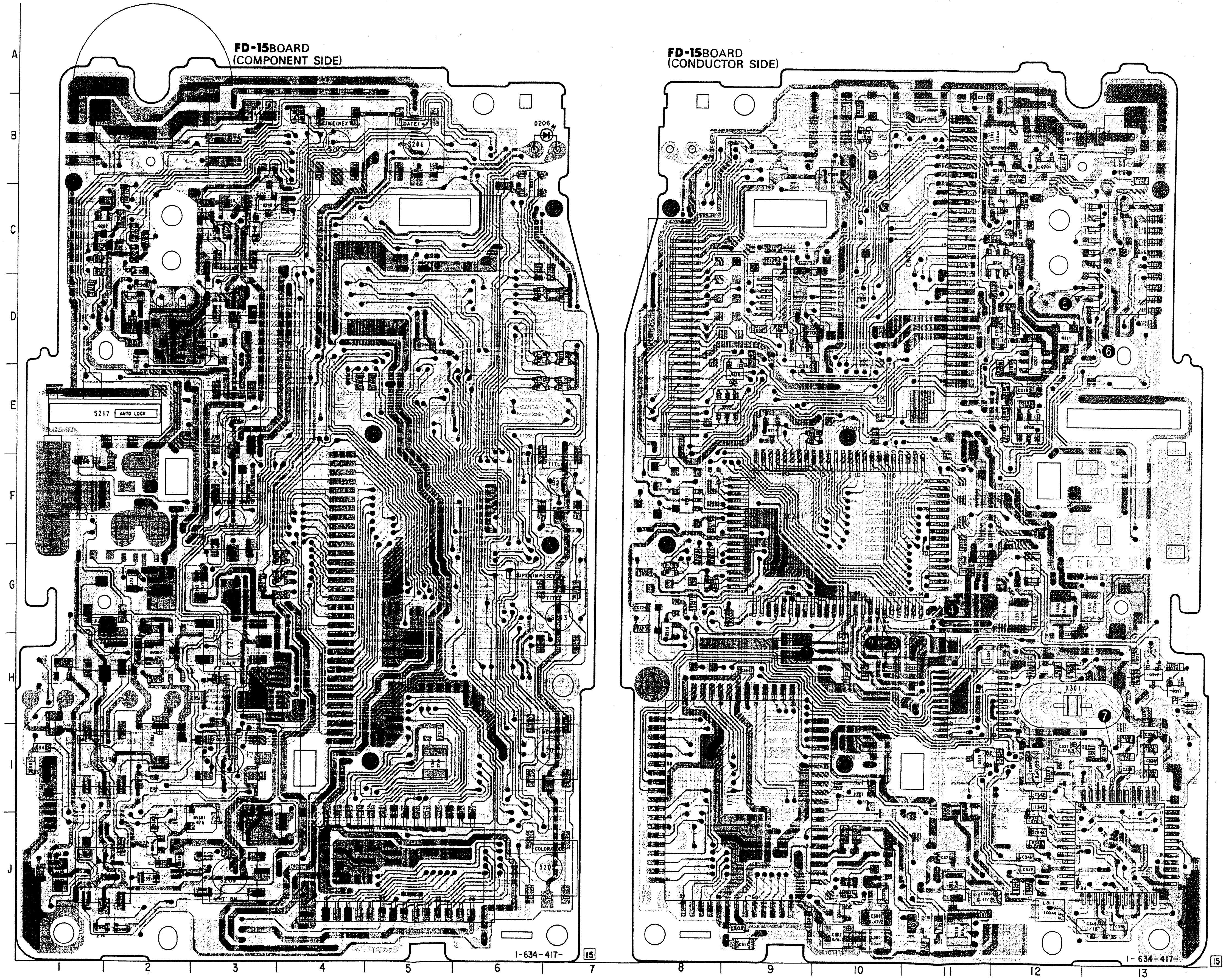

(See page 183.)
TO FC-28 BOARD CN601
(See page 122.)
TO VC-67 BOARD CN305
M201
CHASSIS GND
SIRCS SIG
SS GND
LANC DC
LANC SIG
K OUT 4
K OUT 3
K IN 2
K IN 1
K IN 0
K IN 4
K IN 3
K OUT 2
K OUT 1
K OUT 0
SS 5V
VTR SW
LANC TO LANC
LANC TO EVR
CAM POWER
AF DISP
SYSTEM RESET
SCK
DATA TO SLV
DATA TO MST
CAM CS
SS GND
Q209 SWITCH (E-8)
Q210 SWITCH (E-9)
Q214 SWITCH (E-9)
L310 4.7µH
C372 0.047
C333 0.01
C332 10/6.3V
R349 22K
Q210 DTC114TU
Q209 XN6215
Q214 DTA144EU
R208 10K
TITLE A/D LEVEL
RV302 47K
R350 33K
C353 1
C354 0.1
C355 0.1
IC303 CXA1393AN
COMP OUT
COMP IN
TH CONT
HYS CONT
CR IN
CG IN
CB IN
GND
DR IN
DB IN
CLP 4
CT GC
YT GC
YB IN
YR IN
YG IN
VCC
DY IN
DY CLP
DY OUT
CT BLK
DR OUT
R357 39K
R358 39K
R352 150K
C356 0.1
R351 100K
C357 0.01
(H-11)
IC303
MATRIX
L302 4.7µH
C371 0.047
C309 0.47/25V
C310 10/6.3V
C311 0.1
R322 100K
(J-5)
IC302
TITLE MEMORY
IC302
M5M52563FP
(J-10)
Q301
SWITCH
Q301
DTC144EU
S218 FADER
S203 TITLE 2
S204 MEMORY
S205 COLOR/MODE
S207 TIME(NEXT)
S208 PROGRAM AE
S209 WHT BAL
S211 GAIN
S212 FOCUS
S213 PUSH AUTO
S215 HUTTER SPEED
S216
S217 AUTO LOCK
R321 10K
(I-11) Q314 BUFFER
(I-11) Q313 SWITCH
(J-12) Q312 PHASE SHIFT
(H-13) Q311 PHASE SHIFT
(H-13) Q317 PHASE SHIFT
R356 1.2K
Q314 2SC4081
R347 10K
Q313 DTC144EU
R348 2.2K
CHROMA GAIN
R340 22K
RV301 4.7K
TH300
R343 2.2K
R364 330
Q317 2SA1576
R359 6.8k
R360 22k
R365 1.5k
R344 2.2K
Q312 2SC4081
R366 3.9K
Q311 2SC4081
R341 27K
C345 0.022
C342 0.01
R342 2.2K
C343 15P
C361 10
R339 1M
R337 0
C347 0.01
C346 0.01
C344 0.022
C341 0.022
C340 0.01
C339 0.47/25V
C338 0.01
R335 1.5K
C337 2.2/6.3V
fSC
CT302 30P
X301 14.318MHz
R334 1K
R333 56
R332 270
C336 0.01
C334 270P
R331 100K
C335 10P
R346 2.7K
L311 100µH
R345 2.7K
C348 15P
CHROMA OUT
C349 1/16V
C350 0.01
C351 0.1
IC304
M51286GP
(J-13)
IC304
ENCODER
C352 1/16V
R324 68K
C312 270P
IC301
CF79028PG
C304 0.1
R320 1.5K
R300 10K
R304 10K
R306 10K
R308 10K
R311 10K
Q315 DTC144EU
L301 18µH
C313 22P
CT301 30P
CONTROLLER
(G-8) Q315 SWITCH
no mark: REC/PB mode (VTR)
( ): REC mode
< >: PB mode

MODE CONTROL MODE CONTROL

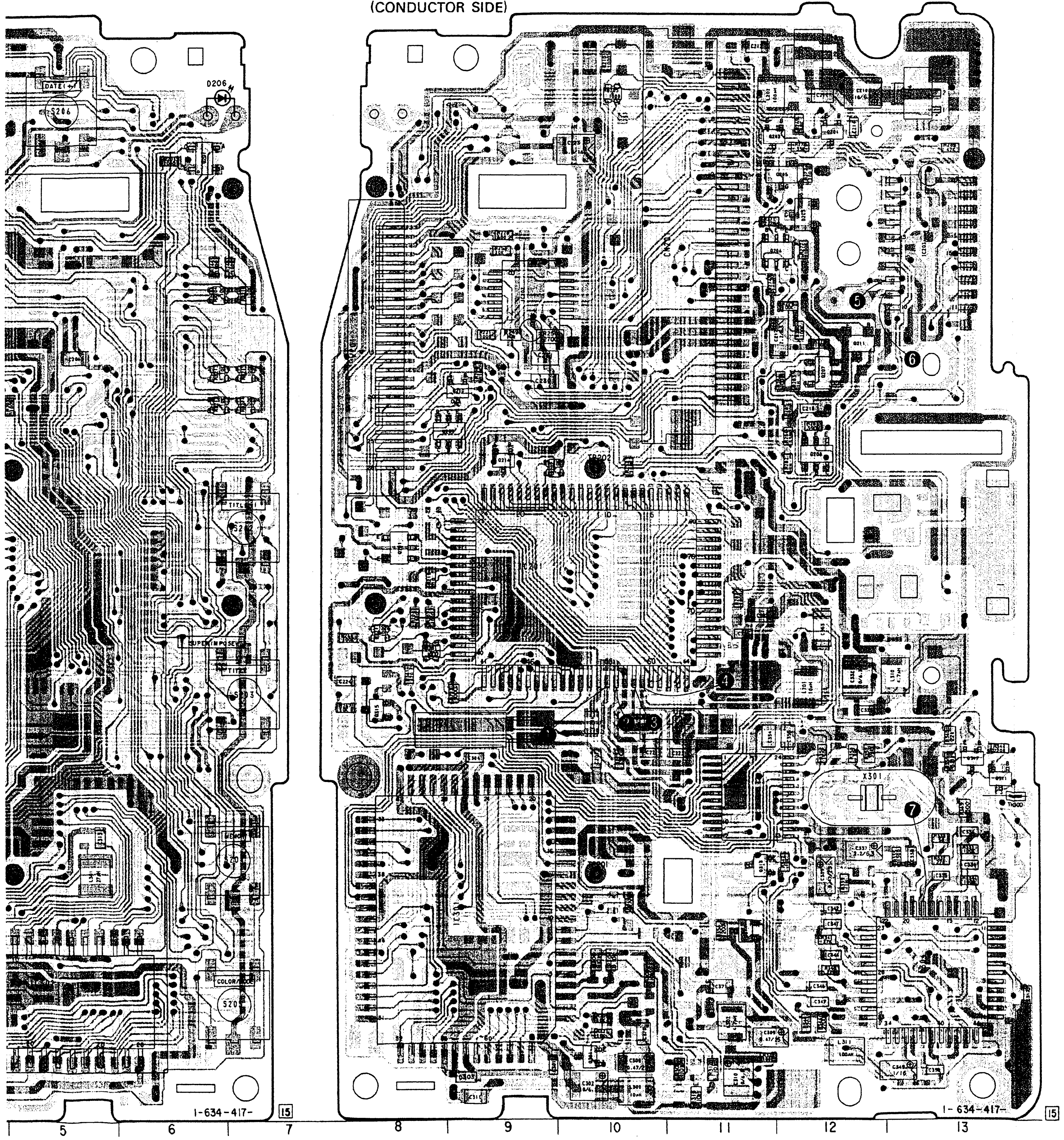
FD-15 (MODE CONTROL) PRINTED WIRING BOARD

—Ref. No. FD-15 BOARD : 5000 series—


SP LP COUNTER
TC
MARK
ZERO MEM
AM
PM
88:88:88
HI-FI STEREO
Hi8
A S
IRIS MANUAL
18888
GAIN MANUAL
FOCUS MANUAL


FD-15BOARD
(COMPONENT SIDE)
FD-15BOARD
(CONDUCTOR SIDE)
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
S217
AUTO LOCK
D206
S206
X301
1-634-417-
15
1-634-417-
15

FD-15BOARD
(CONDUCTOR SIDE)



DIODE

D201	8-719-940-45	DIODE DWA010
D202	8-719-404-46	DIODE MA110
D203	8-719-938-72	DIODE SB01-05CP
D204	8-719-420-36	DIODE MA151A
D205	8-719-404-46	DIODE MA110
D206	8-719-812-41	DIODE DWA010

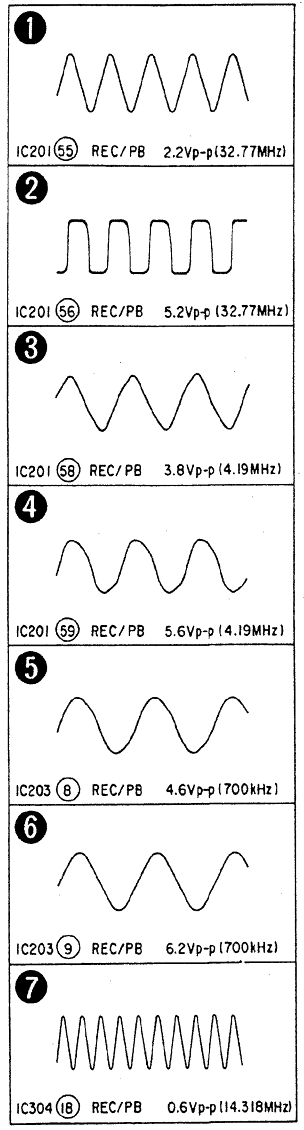
IC

IC201	8-759-150-52	IC UPD75316GF-051
IC202	8-759-999-02	IC TL1596CDSB
IC203	8-759-145-63	IC UPD7564G-540
IC205	8-759-937-54	IC S-81250HG-RD
IC206	8-759-937-56	IC S-8054ALB-LMS
IC301	8-759-998-30	IC CF79028PG
IC302	8-759-632-36	IC M5M5256BFP
IC303	8-752-039-49	IC CXA1393AN
IC304	8-759-634-47	IC M51285BGP

TRANSISTOR

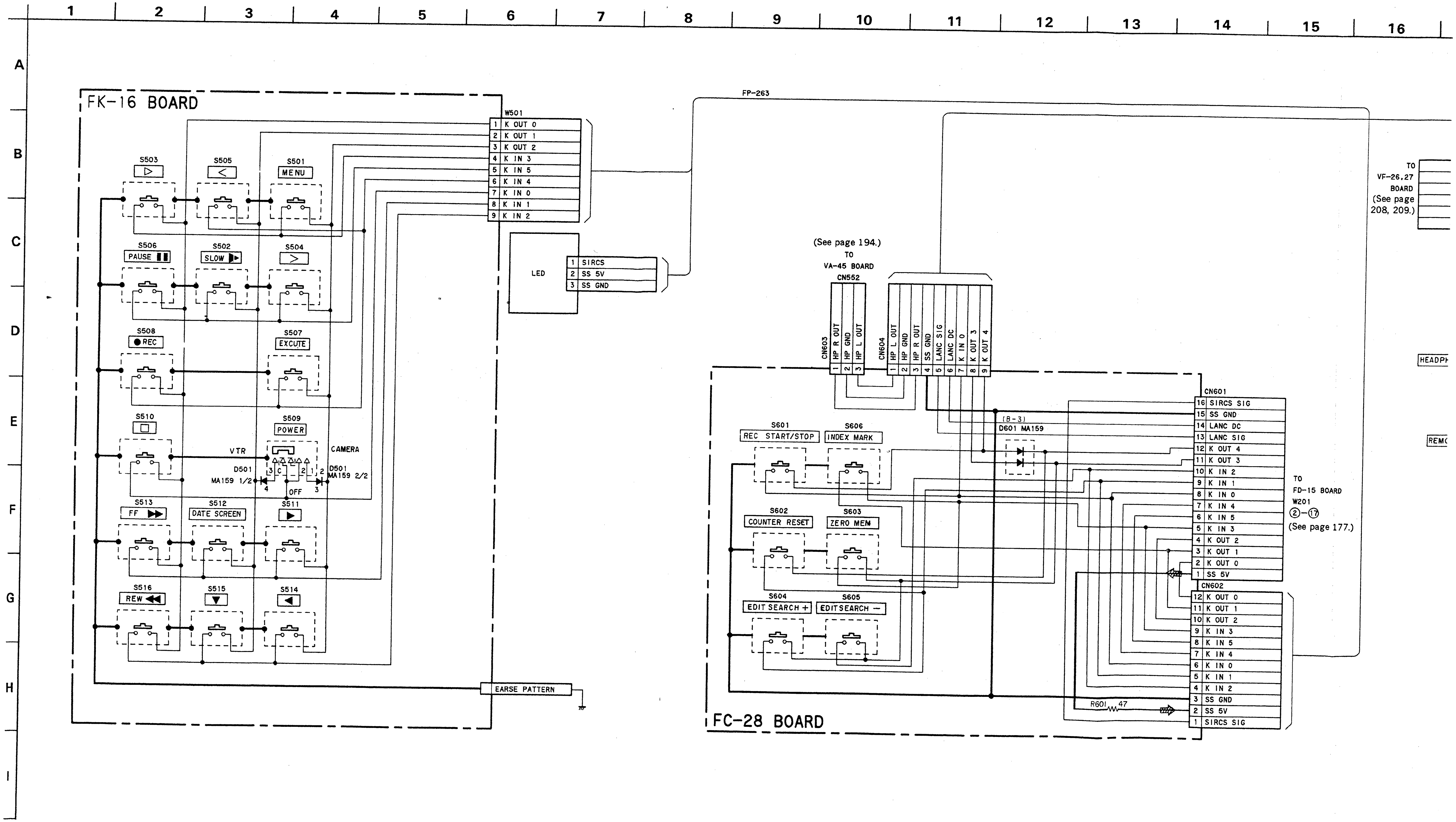
Q201	8-729-904-20	TRANSISTOR FMA2
Q202	8-729-905-18	TRANSISTOR DTC144EU
Q203	8-729-905-23	TRANSISTOR 2SA1576-R
Q204	8-729-905-15	TRANSISTOR DTC144WU
Q205	8-729-109-44	TRANSISTOR 2SK94
Q206	8-729-402-78	TRANSISTOR XN6401
Q207	8-729-402-19	TRANSISTOR XN6501
Q208	8-729-402-78	TRANSISTOR XN6401
Q209	8-729-403-10	TRANSISTOR XN6215
Q210	8-729-905-XX	TRANSISTOR DTC114TU
Q211	8-729-100-66	TRANSISTOR 2SC1623
Q212	8-729-905-XX	TRANSISTOR DTC114TU
Q213	8-729-905-18	TRANSISTOR DTC144EU
Q214	8-729-905-12	TRANSISTOR DTA144EU
Q301	8-729-925-91	TRANSISTOR DTC115EU
Q311	8-729-905-35	TRANSISTOR 2SC4081-R
Q312	8-729-905-35	TRANSISTOR 2SC4081-R
Q313	8-729-905-18	TRANSISTOR DTC144EU
Q314	8-729-905-35	TRANSISTOR 2SC4081-R
Q315	8-729-905-18	TRANSISTOR DTC144EU
Q317	8-729-905-23	TRANSISTOR 2SA1576-R

FD-15 BOARD



FK-16 (FUNCTION SWITCH), FC-28 (FUNCTION SWITCH), SW-120 (REC START/STOP, STANDBY SWITCH), FP-263 (REMOTE COMMAND RECIEVER) SCHEMATIC DIAGRAM

—Ref. No. FK-16 BOARD: 3000 series, FC-28, SW-120, FP-263 BOARDS: 7000 series—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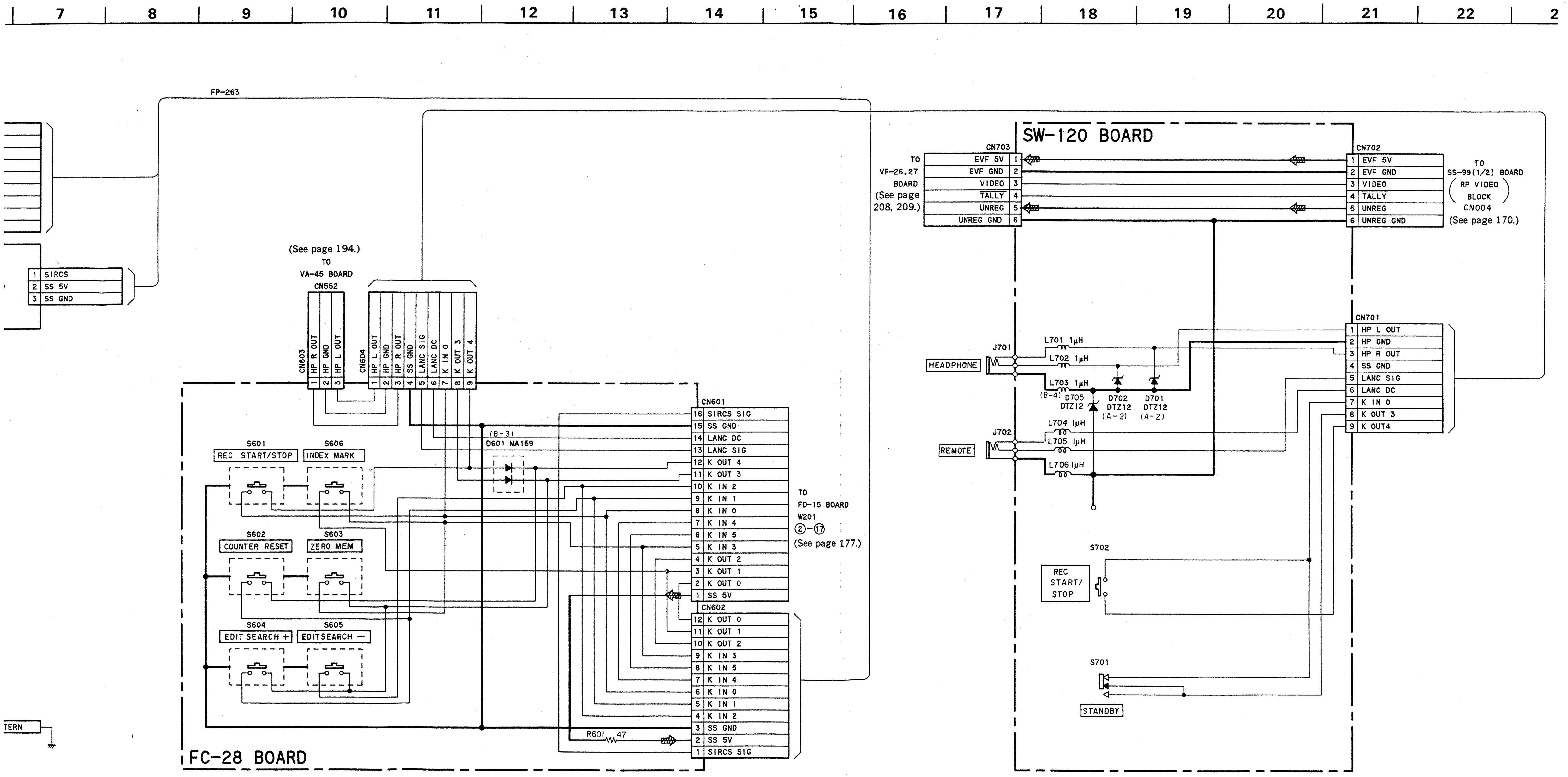
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
FK-16 BOARD
W501
1 K OUT 0
2 K OUT 1
3 K OUT 2
4 K IN 3
5 K IN 5
6 K IN 4
7 K IN 0
8 K IN 1
9 K IN 2
S503
S505
S501
MENU
S506
PAUSE
S502
SLOW
S504
S508
● REC
S507
EXCUTE
S510
S509
POWER
VTR
CAMERA
D501
MA159 1/2
D501
MA159 2/2
OFF
S513
FF
S512
DATE SCREEN
S511
S516
REW
S515
S514
LED
1 SIRCS
2 SS 5V
3 SS GND
EARSE PATTERN
FP-263
TO
VF-26,27
BOARD
(See page 208, 209.)
(See page 194.)
TO
VA-45 BOARD
CN552
CN603
1 HP R OUT
2 HP GND
3 HP L OUT
CN604
1 HP L OUT
2 HP GND
3 HP R OUT
4 SS GND
5 LANC SIG
6 LANC DC
7 K IN 0
8 K OUT 3
9 K OUT 4
HEADPH
REMO
CN601
16 SIRCS SIG
15 SS GND
14 LANC DC
13 LANC SIG
12 K OUT 4
11 K OUT 3
10 K IN 2
9 K IN 1
8 K IN 0
7 K IN 4
6 K IN 5
5 K IN 3
4 K OUT 2
3 K OUT 1
2 K OUT 0
1 SS 5V
CN602
12 K OUT 0
11 K OUT 1
10 K OUT 2
9 K IN 3
8 K IN 5
7 K IN 4
6 K IN 0
5 K IN 1
4 K IN 2
3 SS GND
2 SS 5V
1 SIRCS SIG
TO
FD-15 BOARD
W201
②-⑰
(See page 177.)
(B-3)
D601 MA159
S601
REC START/STOP
S606
INDEX MARK
S602
COUNTER RESET
S603
ZERO MEM
S604
EDIT SEARCH +
S605
EDITSEARCH −
R601 47
FC-28 BOARD

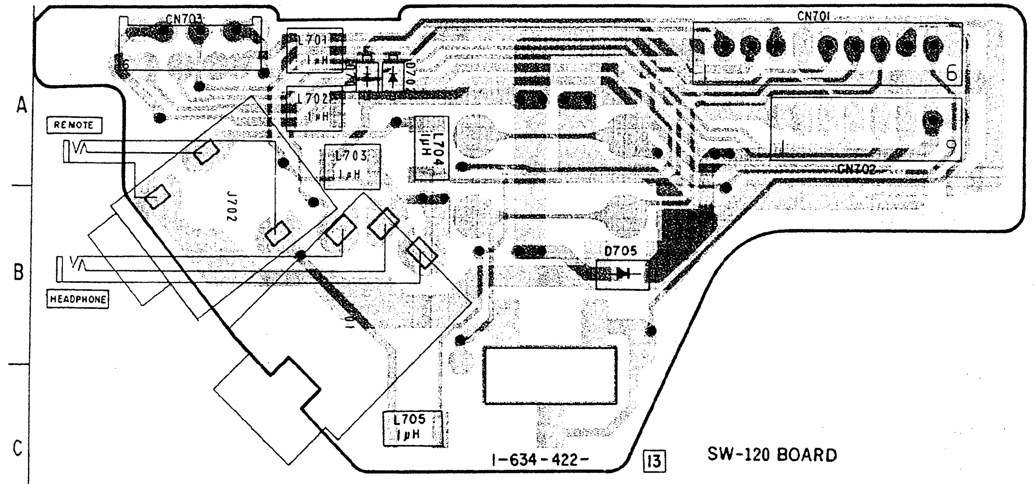
BY SWITCH), FP-263 (REMOTE COMMAND RECIEVER) SCHEMATIC DIAGRAM


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
2
FP-263
1 SIRCS
2 SS 5V
3 SS GND
TERN
(See page 194.)
TO
VA-45 BOARD
CN552
CN603
1 HP R OUT
2 HP GND
3 HP L OUT
CN604
1 HP L OUT
2 HP GND
3 HP R OUT
4 SS GND
5 LANC SIG
6 LANC DC
7 K IN 0
8 K OUT 3
9 K OUT 4
S601
REC START/STOP
S606
INDEX MARK
S602
COUNTER RESET
S603
ZERO MEM
S604
EDIT SEARCH +
S605
EDITSEARCH −
(B-3)
D601 MA159
R601 47
FC-28 BOARD
CN601
16 SIRCS SIG
15 SS GND
14 LANC DC
13 LANC SIG
12 K OUT 4
11 K OUT 3
10 K IN 2
9 K IN 1
8 K IN 0
7 K IN 4
6 K IN 5
5 K IN 3
4 K OUT 2
3 K OUT 1
2 K OUT 0
1 SS 5V
CN602
12 K OUT 0
11 K OUT 1
10 K OUT 2
9 K IN 3
8 K IN 5
7 K IN 4
6 K IN 0
5 K IN 1
4 K IN 2
3 SS GND
2 SS 5V
1 SIRCS SIG
TO
FD-15 BOARD
W201
②-⑰
(See page 177.)
TO
VF-26,27
BOARD
(See page
208, 209.)
CN703
EVF 5V 1
EVF GND 2
VIDEO 3
TALLY 4
UNREG 5
UNREG GND 6
SW-120 BOARD
CN702
1 EVF 5V
2 EVF GND
3 VIDEO
4 TALLY
5 UNREG
6 UNREG GND
TO
SS-99(1/2) BOARD
(RP VIDEO BLOCK)
CN004
(See page 170.)
CN701
1 HP L OUT
2 HP GND
3 HP R OUT
4 SS GND
5 LANC SIG
6 LANC DC
7 K IN 0
8 K OUT 3
9 K OUT4
J701
HEADPHONE
L701 1μH
L702 1μH
L703 1μH
(B-4) D705
DTZ12
D702
DTZ12
(A-2)
D701
DTZ12
(A-2)
J702
REMOTE
L704 1μH
L705 1μH
L706 1μH
S702
REC
START/
STOP
S701
STANDBY

FK-16 (FUNCTION SWITCH), FC-28 (FUNCTION SWITCH), SW-120 (REC START/STOP, STANDBY SWITCH), FP-263 (REMOTE COMMAND RECIEVER) PRINTED WIRING BOARD

—Ref. No. FK-16 BOARD : 3000 series, FC-28, SW-120, FP-263 BOARDS : 7000 series—

SW-120 BOARD
(COMPONENT SIDE)

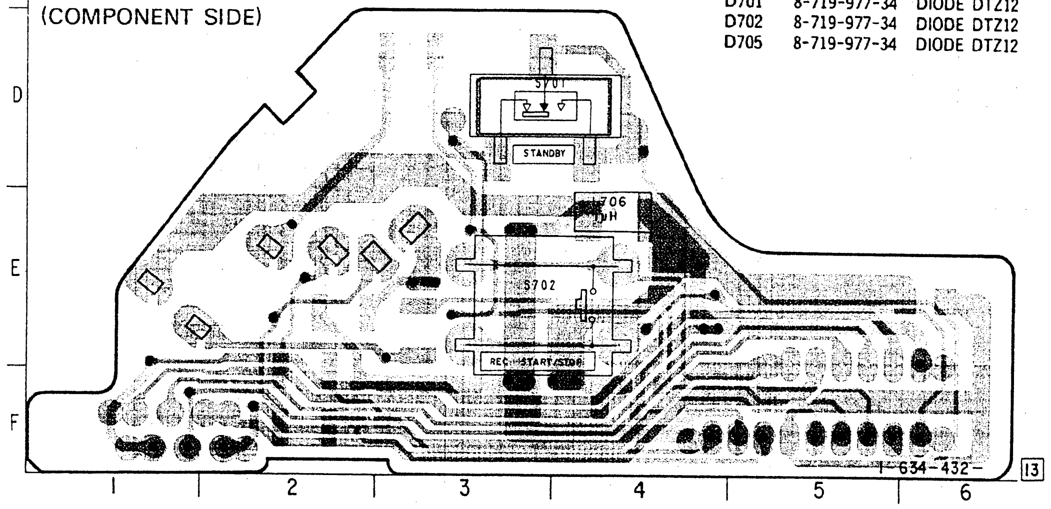


CN703
L701
L702
CN701
CN702
REMOTE
HEADPHONE
J702
L703
1μH
D701
D702
D705
L705
1μH
1-634-422-
13
A
B
C

SW-120 BOARD

DIODE		
D701	8-719-977-34	DIODE DTZ12
D702	8-719-977-34	DIODE DTZ12
D705	8-719-977-34	DIODE DTZ12

SW-120 BOARD
(COMPONENT SIDE)

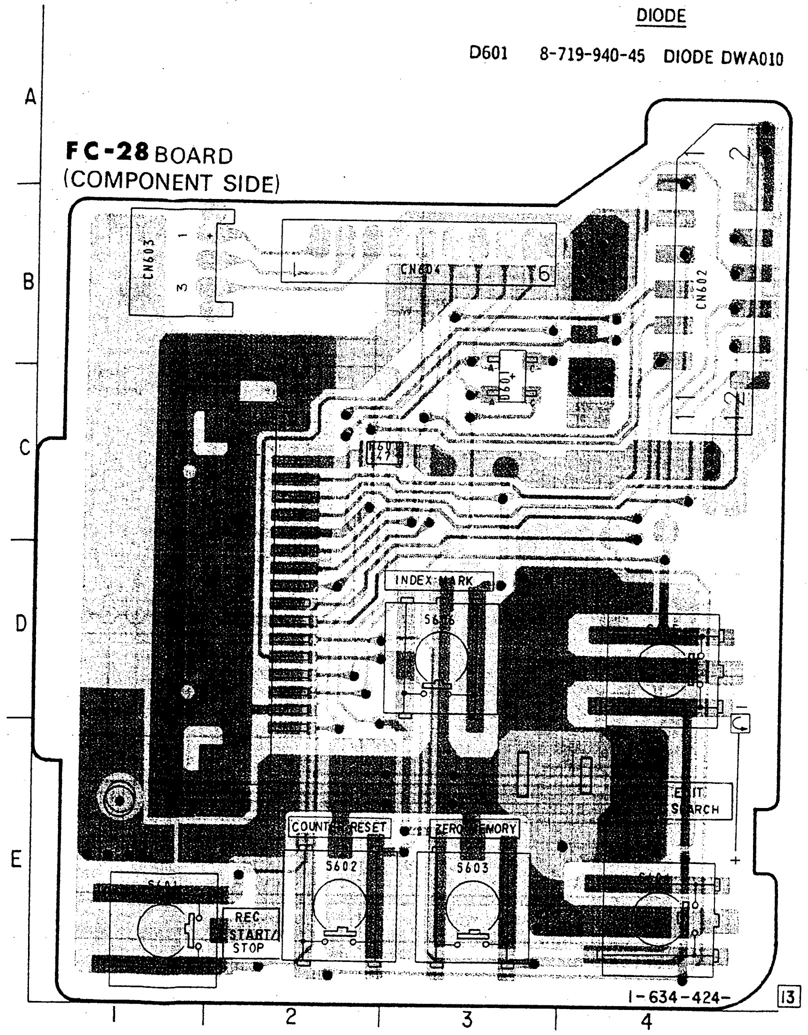


S701
STANDBY
L706
1μH
S702
REC START/STOP
1-634-432-
13
D
E
F
1
2
3
4
5
6

FC-28 BOARD

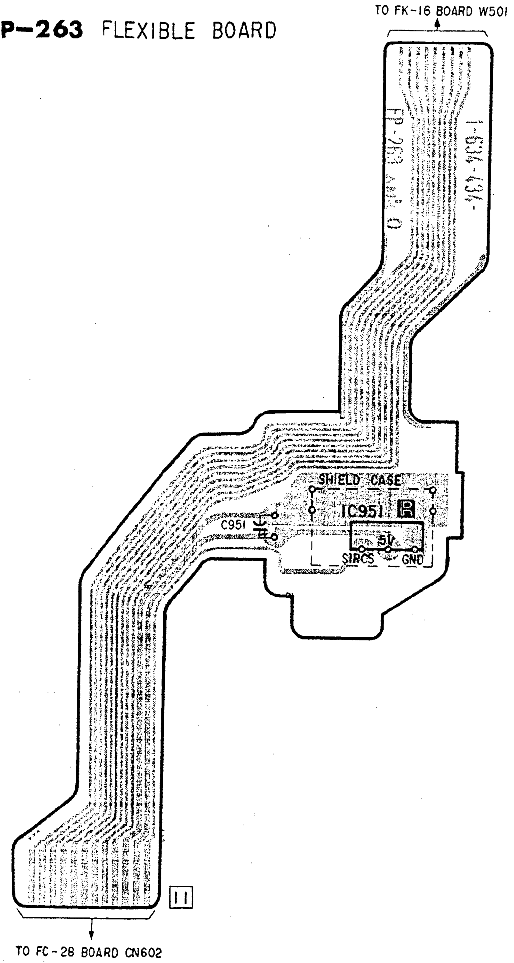
DIODE		
D601	8-719-940-45	DIODE DWA010

FC-28 BOARD
(COMPONENT SIDE)



CN603
CN604
CN602
D601
INDEX MARK
S606
EDIT SEARCH
COUNTER RESET
ZERO MEMORY
S602
S603
S601
REC START/STOP
1-634-424-
13
A
B
C
D
E
1
2
3
4

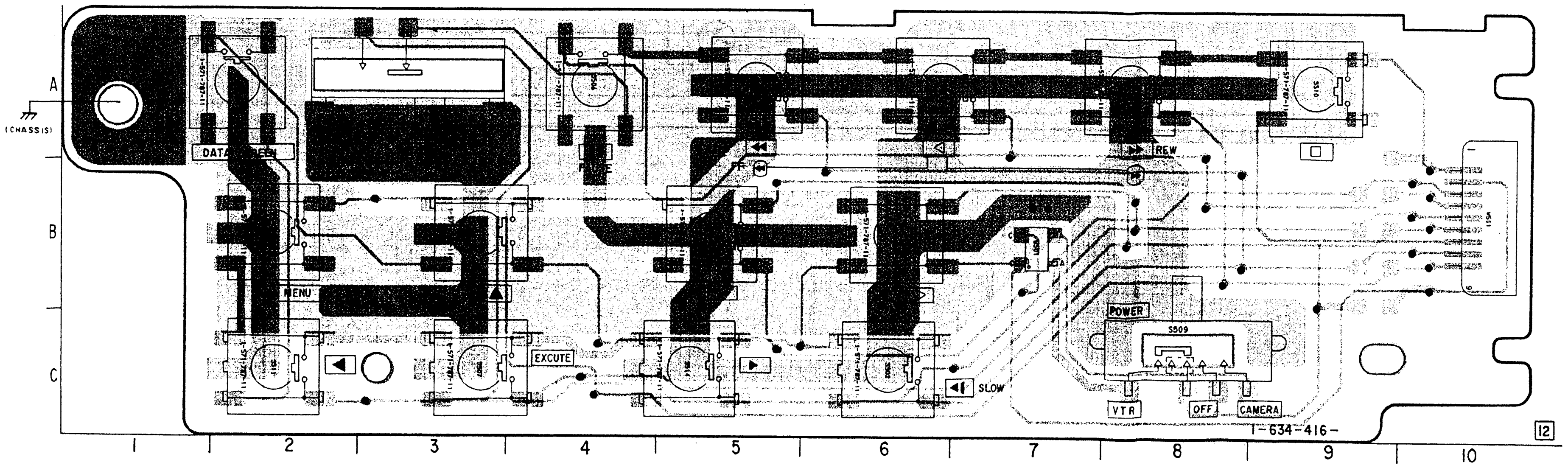
FP-263 FLEXIBLE BOARD



TO FK-16 BOARD W501
1-634-434-
FP-263
SHIELD CASE
IC951
C951
5V
SIRCS
GND
11
TO FC-28 BOARD CN602

IC		
IC951	8-741-100-63	IC

FK-16 BOARD
(CONDUCTOR SIDE)



(CHASSIS)
DATA SCREEN
REW
MENU
EXCUTE
SLOW
POWER
S509
VTR
OFF
CAMERA
1-634-416-
12
A
B
C
1
2
3
4
5
6
7
8
9
10

FK-16 BOARD

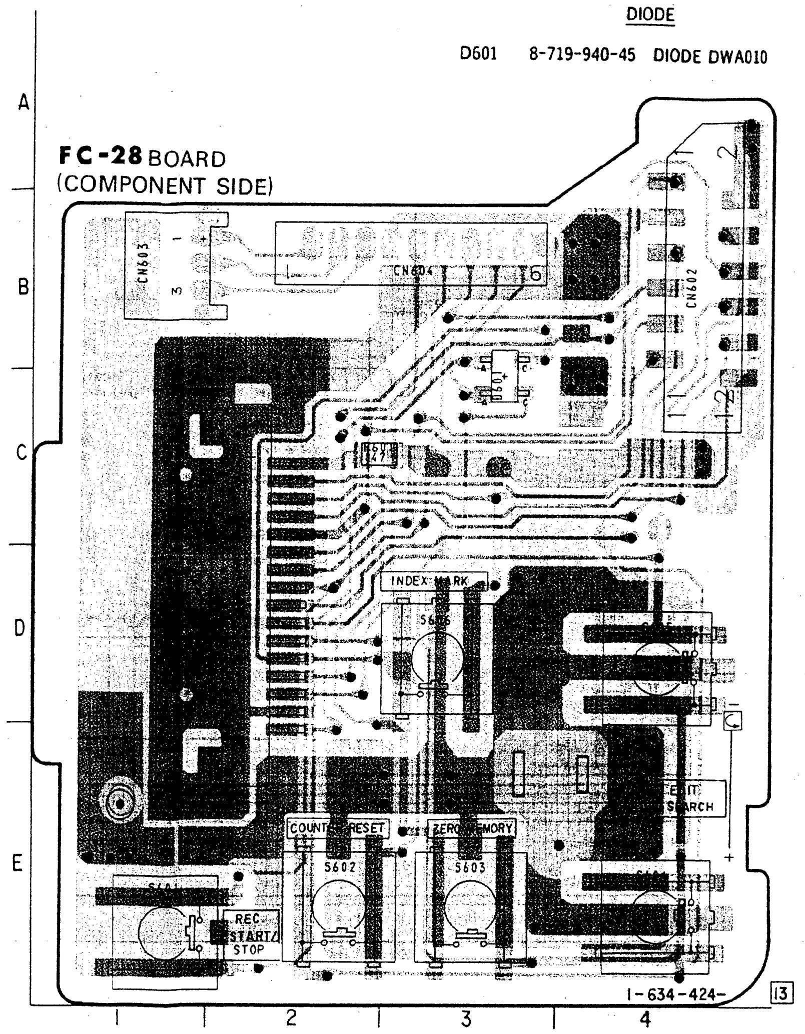
DIODE		
D501	8-719-940-45	DIODE DWA010

ITCH), FP-263 (REMOTE COMMAND RECIEVER) PRINTED WIRING BOARD

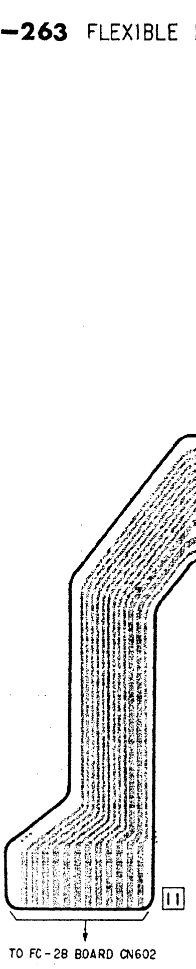
FC-28 BOARD

DIODE

D601 8-719-940-45 DIODE DWA010

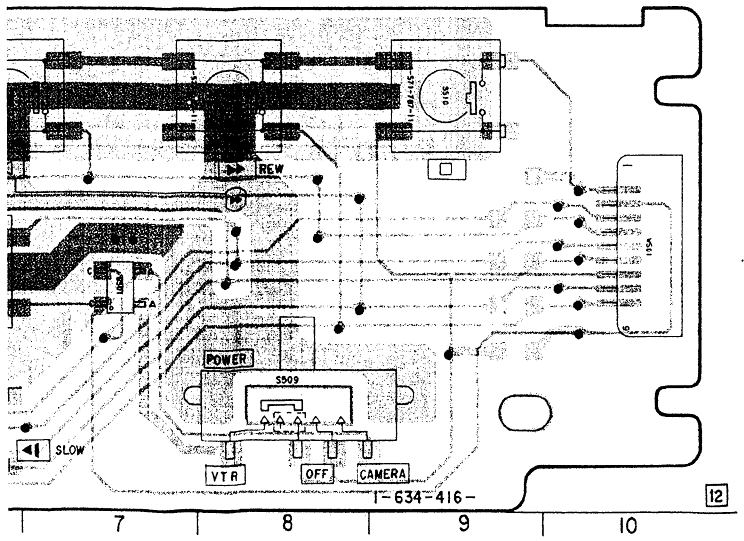

FC-28 BOARD
(COMPONENT SIDE)
A
B
C
D
E
CN603
CN604
CN602
INDEX MARK
S605
COUNTER RESET
ZERO MEMORY
S602
S603
EDIT SEARCH
S601
REC START/STOP
1-634-424-
13
1
2
3
4

FP-263 FLEXIBLE BOARD


TO FK-16 BOARD W501
1-634-434-
FP-263
SHIELD CASE
IC951
C951
SIRCS
GND
11
TO FC-28 BOARD CN602

IC

IC951 8-741-100-63 IC SBX1619-51


REW
POWER
S509
SLOW
VTR
OFF
CAMERA
1-634-416-
12
7
8
9
10

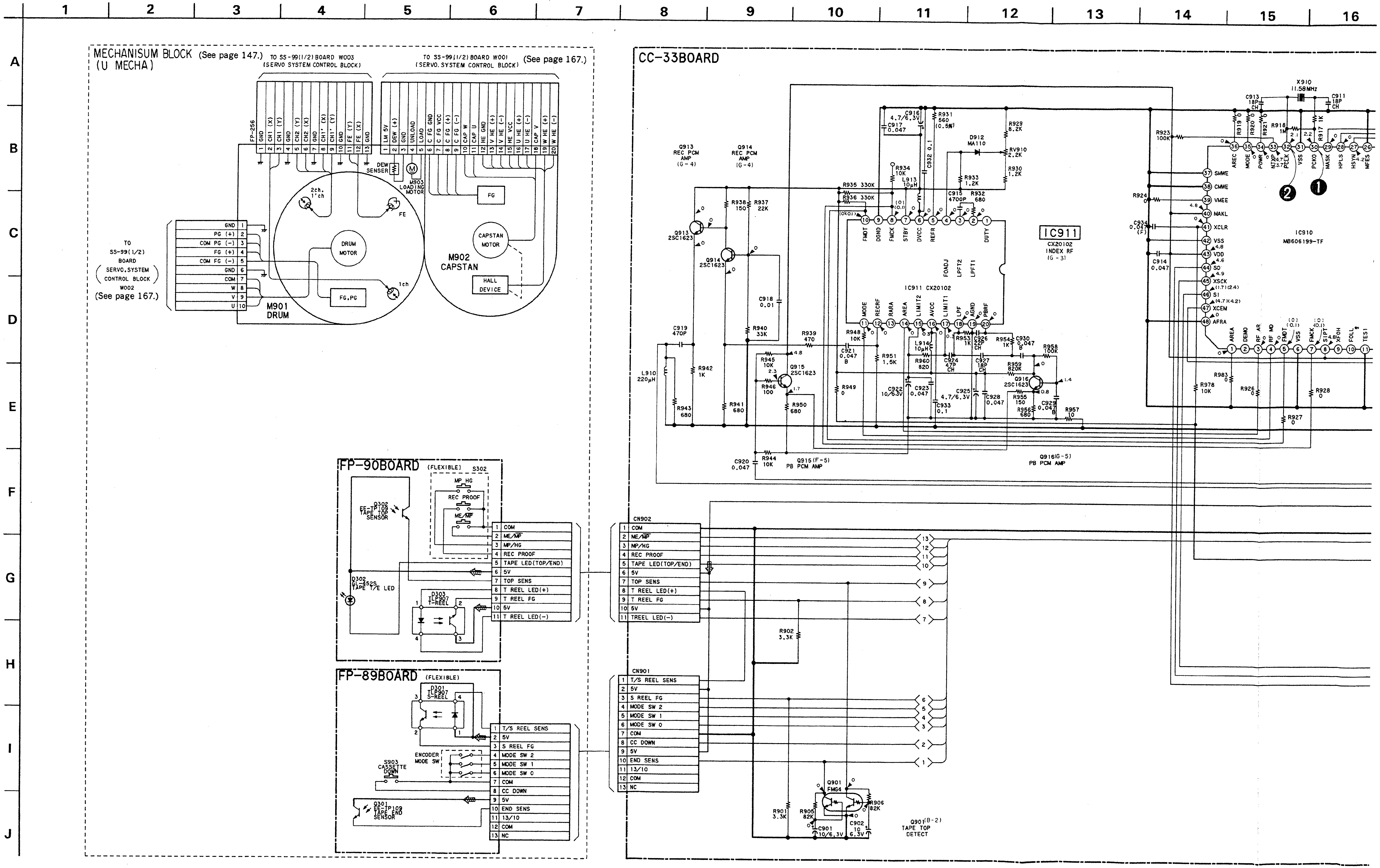
FK-16 BOARD

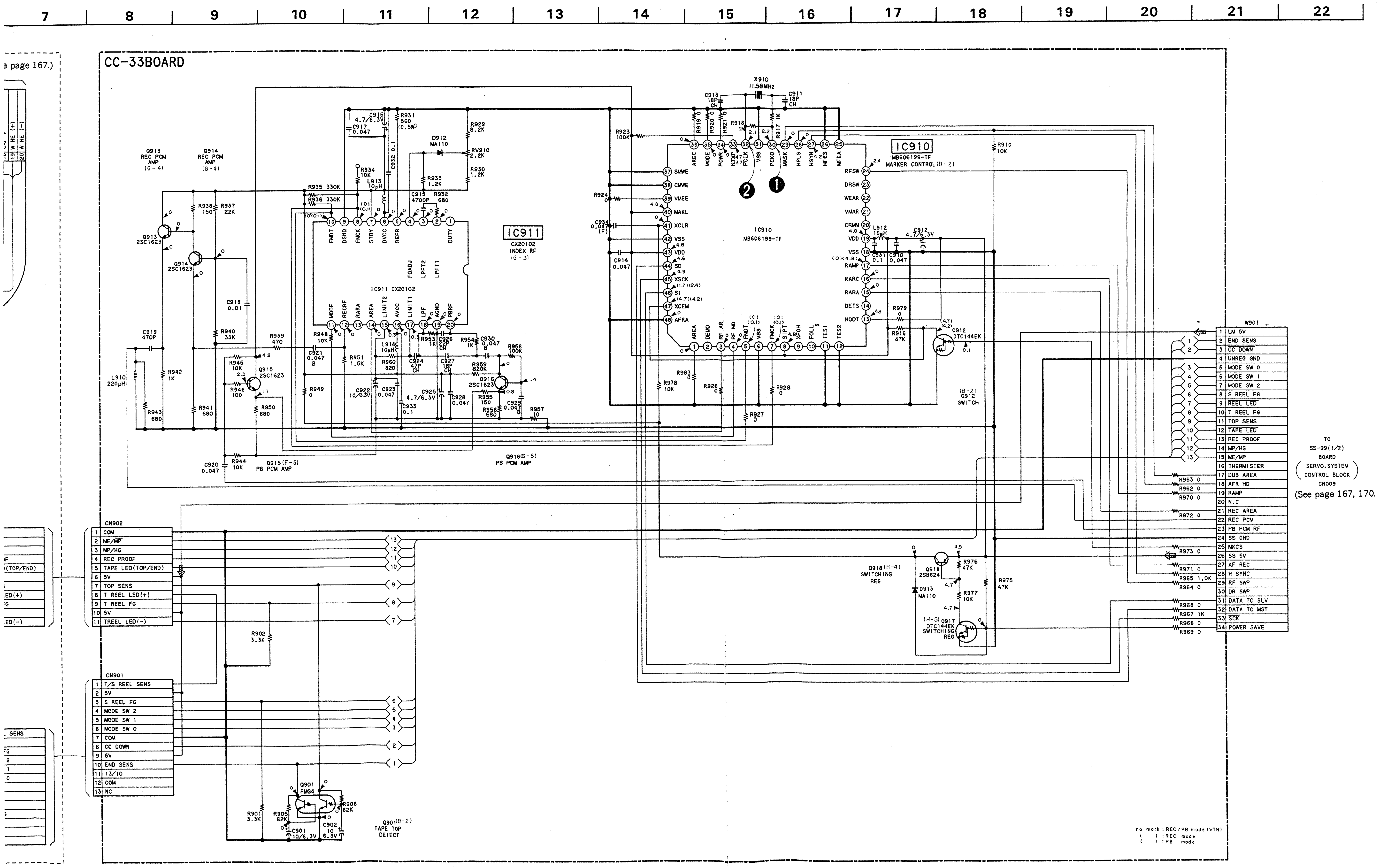
DIODE

D501 8-719-940-45 DIODE DWA010

CC-33 (INDEX), FP-89 (MODE SWITCH, SENSOR), FP-90 (TAPE SELECT SWITCH SENSOR) SCHEMATIC DIAGRAM

—Ref. No. CC-33 BOARD: 6000 series, FP-89, FP-90 BOARDS: 7000 series—

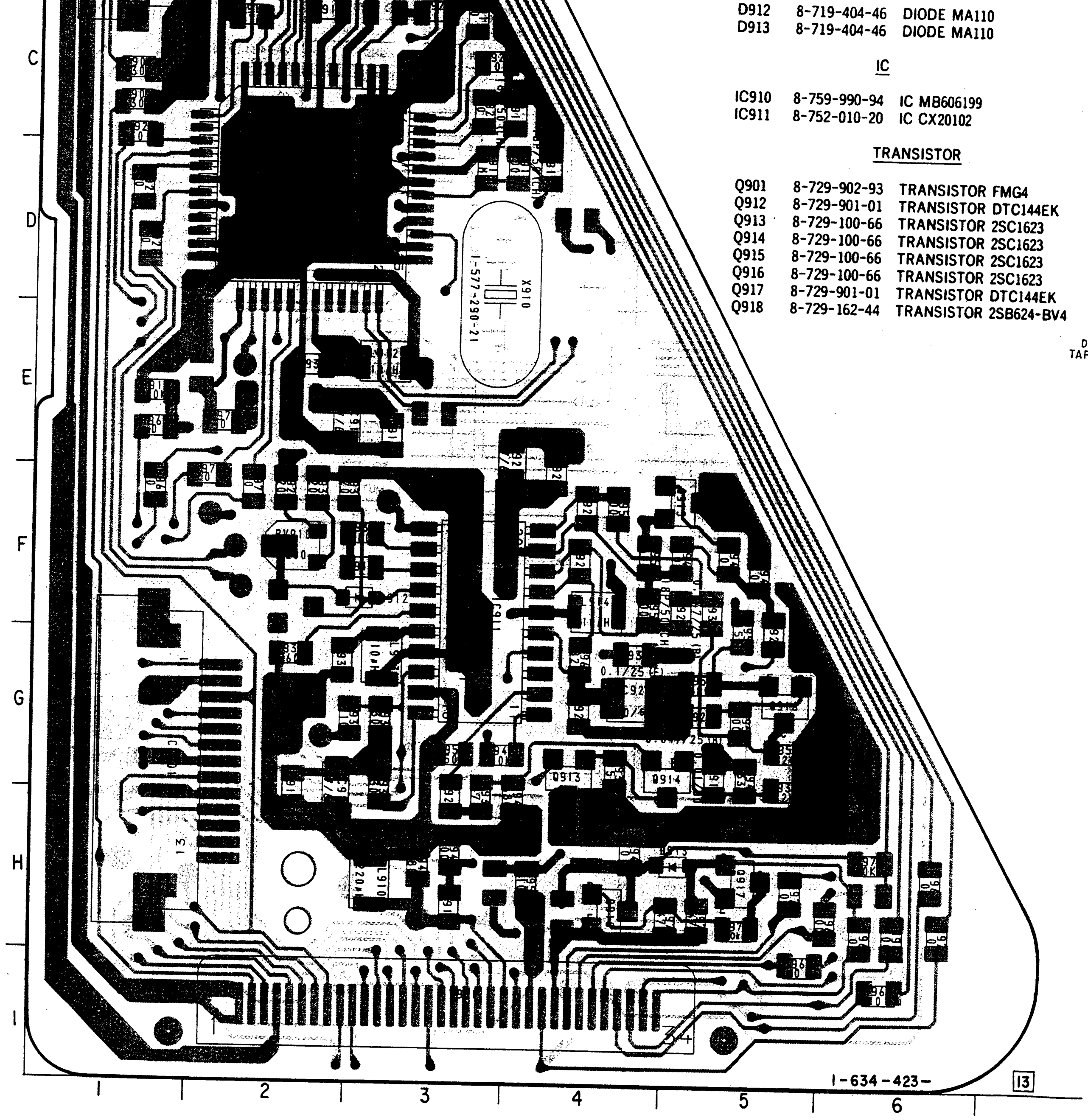

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MECHANISUM BLOCK (See page 147.)
(U MECHA)
TO SS-99(1/2) BOARD W003 (SERVO SYSTEM CONTROL BLOCK)
TO SS-99(1/2) BOARD W001 (SERVO. SYSTEM CONTROL BLOCK)
(See page 167.)
FP-256
DEW SENSER
M903 LOADING MOTOR
2ch. 1'ch
FE
1ch
DRUM MOTOR
M901 DRUM
FG,PG
FG
CAPSTAN MOTOR
M902 CAPSTAN
HALL DEVICE
TO SS-99(1/2) BOARD (SERVO,SYSTEM CONTROL BLOCK) W002
(See page 167.)
GND
PG (+)
COM PG (-)
FG (+)
COM FG (-)
GND
COM
W
V
U
CC-33BOARD
Q913 REC PCM AMP (G-4)
Q914 REC PCM AMP (G-4)
Q913 2SC1623
Q914 2SC1623
Q915 2SC1623
Q916 2SC1623
IC911 CX20102 INDEX RF (G-3)
IC911 CX20102
IC910 MB606199-TF
X910 11.58MHz
D912 MA110
RV910 2.2K
L910 220μH
L913 10μH
L914 10μH
Q915(F-5) PB PCM AMP
Q916(G-5) PB PCM AMP
FMDT
DOND
FMCK
STBY
DVCC
REFR
DUTY
FOADJ
LPFT2
LPFT1
MODE
RECRF
RARA
AREA
LIMIT2
AVCC
LIMIT1
LPF
AGND
PBRF
SMWE
CMWE
VMEE
MAKL
XCLR
VSS
VDD
SO
XSCK
SI
XCEM
AFRA
AREC
MODE
POWR
NTIP
PLCK
VSS
PCKO
MASK
HPLS
HSYN
MFES
AREA
DEMO
RF AR
RF MO
FMDT
VSS
FMCK
SIPT
XFOH
FOLL
TES1
FP-90BOARD (FLEXIBLE)
S302
MP HG
REC PROOF
ME/MP
Q302 EE-TP109 TAPE TOP SENSOR
D302 GL-452S TAPE T/E LED
D303 TLP907 T-REEL
1 COM
2 ME/MP
3 MP/HG
4 REC PROOF
5 TAPE LED(TOP/END)
6 5V
7 TOP SENS
8 T REEL LED(+)
9 T REEL FG
10 5V
11 T REEL LED(-)
CN902
FP-89BOARD (FLEXIBLE)
D301 TLP907 S-REEL
ENCODER MODE SW
S903 CASSETTE DOWN
Q301 EE-TP109 TAPE END SENSOR
1 T/S REEL SENS
2 5V
3 S REEL FG
4 MODE SW 2
5 MODE SW 1
6 MODE SW 0
7 COM
8 CC DOWN
9 5V
10 END SENS
11 13/10
12 COM
13 NC
CN901
Q901 FMG4
Q901(B-2) TAPE TOP DETECT
R902 3.3K
R901 3.3K
R905 82K
R906 82K
C901 10/6.3V
C902 10/6.3V


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
page 167.)
CC-33BOARD
Q913 REC PCM AMP (G-4)
Q914 REC PCM AMP (G-4)
Q913 2SC1623
Q914 2SC1623
Q915 2SC1623
Q915 (F-5) PB PCM AMP
Q916 2SC1623
Q916 (G-5) PB PCM AMP
IC911
CX20102 INDEX RF (G-3)
IC911 CX20102
IC910
MB606199-TF MARKER CONTROL (D-2)
IC910 MB606199-TF
X910 11.58MHz
Q912 DTC144EK
(B-2) Q912 SWITCH
Q918 (H-4) SWITCHING REG
Q918 2SB624
D913 MA110
D912 MA110
(H-5) Q917 DTC144EK SWITCHING REG
Q901 FMG4
Q901 (B-2) TAPE TOP DETECT
CN902
1 COM
2 ME/MP
3 MP/HG
4 REC PROOF
5 TAPE LED (TOP/END)
6 5V
7 TOP SENS
8 T REEL LED(+)
9 T REEL FG
10 5V
11 TREEL LED(-)
CN901
1 T/S REEL SENS
2 5V
3 S REEL FG
4 MODE SW 2
5 MODE SW 1
6 MODE SW 0
7 COM
8 CC DOWN
9 5V
10 END SENS
11 13/10
12 COM
13 NC
W901
1 LM 5V
2 END SENS
3 CC DOWN
4 UNREG GND
5 MODE SW 0
6 MODE SW 1
7 MODE SW 2
8 S REEL FG
9 REEL LED
10 T REEL FG
11 TOP SENS
12 TAPE LED
13 REC PROOF
14 MP/HG
15 ME/MP
16 THERMISTER
17 DUB AREA
18 AFR HD
19 RAMP
20 N.C
21 REC AREA
22 REC PCM
23 PB PCM RF
24 SS GND
25 MKCS
26 SS 5V
27 AF REC
28 H SYNC
29 RF SWP
30 DR SWP
31 DATA TO SLV
32 DATA TO MST
33 SCK
34 POWER SAVE
TO SS-99(1/2) BOARD (SERVO,SYSTEM CONTROL BLOCK) CN009
(See page 167, 170.
no mark : REC/PB mode (VTR)
( ) : REC mode
( ) : PB mode

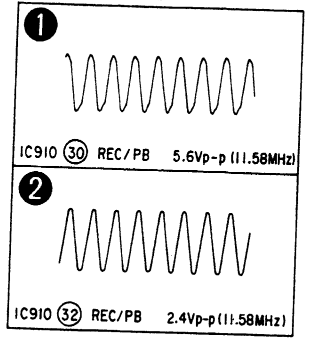
CC-33 (INDEX), FP-89 (MODE SWITCH, SENSOR), FP-90 (TAPE SELECT SWITCH SENSOR) PRINTED WIRING BOARD

—Ref. No. CC-33 BOARD : 6000 series, FP-89, FP-90 BOARDS : 7000 series—

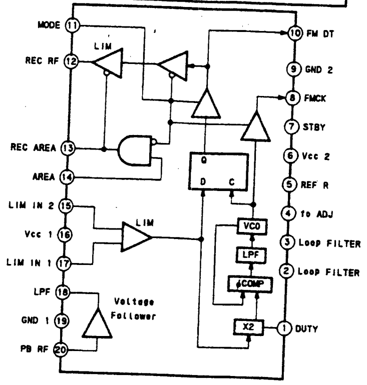
CC-33 BOARD
(CONDUCTOR SIDE)


A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Q901
Q912
D912
Q913
Q914
X910
1-577-290-21
1-634-423-
13

CC-33 BOARD



CC-33 BOARD IC911 CX20102


MODE ⑪
REC RF ⑫
REC AREA ⑬
AREA ⑭
LIM IN 2 ⑮
Vcc 1 ⑯
LIM IN 1 ⑰
LPF ⑱
GND 1 ⑲
PB RF ⑳
⑩ FM DT
⑨ GND 2
⑧ FMCK
⑦ STBY
⑥ Vcc 2
⑤ REF R
④ fo ADJ
③ Loop FILTER 2
② Loop FILTER 1
① DUTY
LIM
LIM
Q
D
C
VCO
LPF
φCOMP
X2
Voltage Follower

DIODE

D912	8-719-404-46	DIODE MA110
D913	8-719-404-46	DIODE MA110

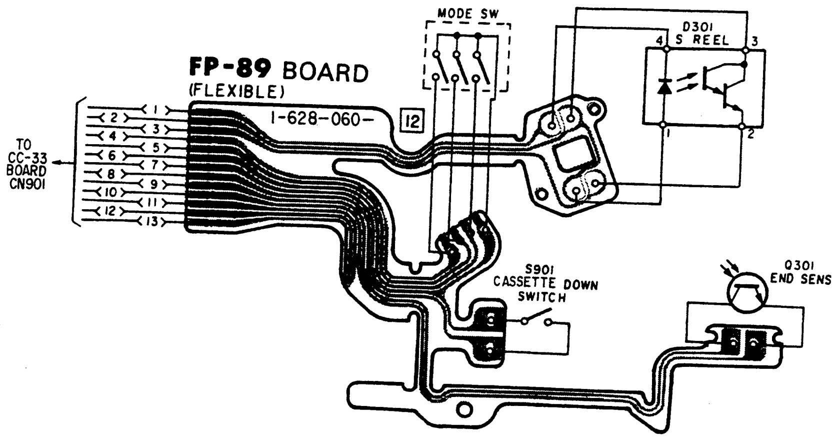
IC

IC910	8-759-990-94	IC MB606199
IC911	8-752-010-20	IC CX20102

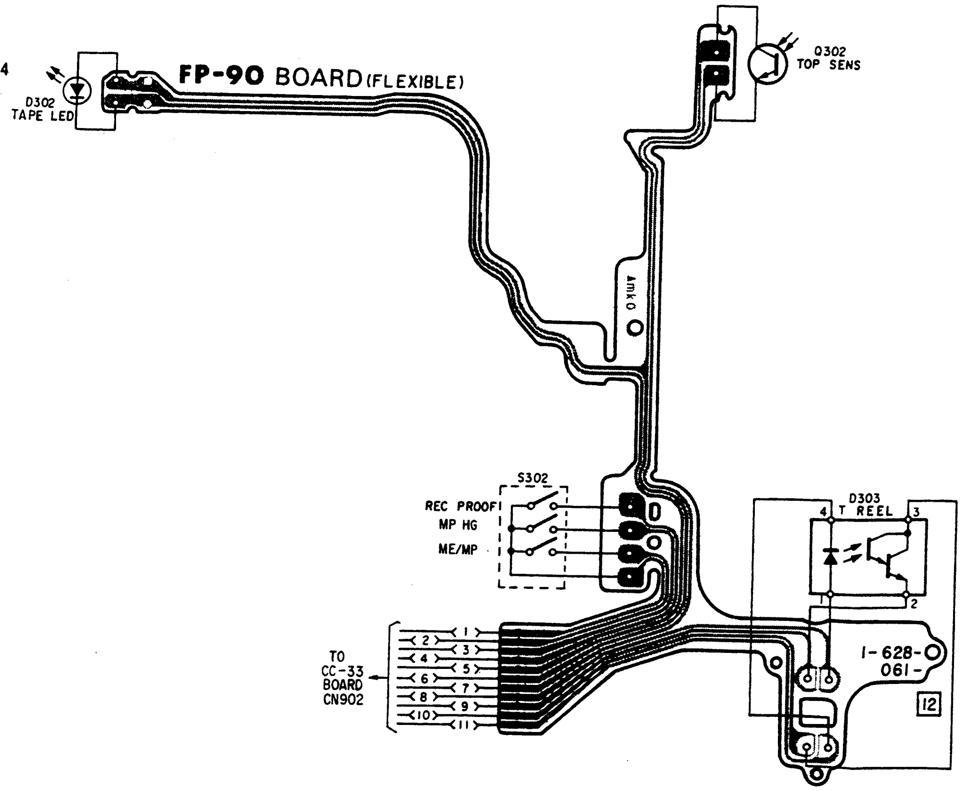
TRANSISTOR

Q901	8-729-902-93	TRANSISTOR FMG4
Q912	8-729-901-01	TRANSISTOR DTC144EK
Q913	8-729-100-66	TRANSISTOR 2SC1623
Q914	8-729-100-66	TRANSISTOR 2SC1623
Q915	8-729-100-66	TRANSISTOR 2SC1623
Q916	8-729-100-66	TRANSISTOR 2SC1623
Q917	8-729-901-01	TRANSISTOR DTC144EK
Q918	8-729-162-44	TRANSISTOR 2SB624-BV4

FP-89 BOARD
(FLEXIBLE)

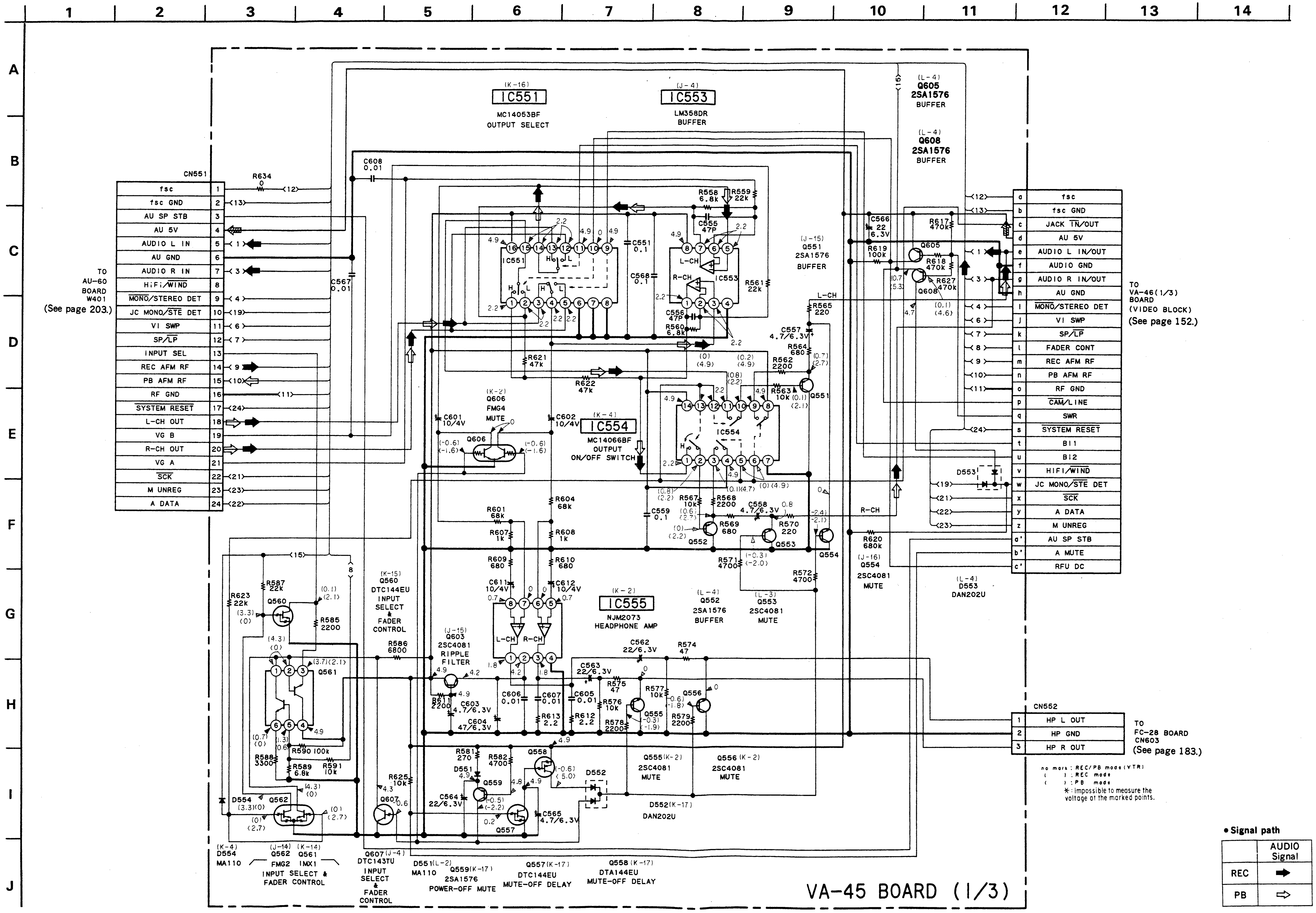

TO CC-33 BOARD CN901
1
2
3
4
5
6
7
8
9
10
11
12
13
1-628-060-
12
MODE SW
D301 S REEL
4
3
1
2
S901 CASSETTE DOWN SWITCH
Q301 END SENS

FP-90 BOARD (FLEXIBLE)


D302 TAPE LED
Q302 TOP SENS
amko
S302
REC PROOF
MP HG
ME/MP
D303 T REEL
4
3
1
2
TO CC-33 BOARD CN902
1
2
3
4
5
6
7
8
9
10
11
1-628-061-
12

VA-45 (Y/CHROMA SIGNAL PROCESS, AUDIO SIGNAL PROCESS) SCHEMATIC DIAGRAM

—Ref. No. VA-45 BOARD: 1000 series—



1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
TO AU-60 BOARD W401 (See page 203.)
CN551
1 fsc
2 fsc GND
3 AU SP STB
4 AU 5V
5 AUDIO L IN
6 AU GND
7 AUDIO R IN
8 HiFi/WIND
9 MONO/STEREO DET
10 JC MONO/STE DET
11 VI SWP
12 SP/LP
13 INPUT SEL
14 REC AFM RF
15 PB AFM RF
16 RF GND
17 SYSTEM RESET
18 L-CH OUT
19 VG B
20 R-CH OUT
21 VG A
22 SCK
23 M UNREG
24 A DATA
IC551 MC14053BF OUTPUT SELECT
IC553 LM358DR BUFFER
IC554 MC14066BF OUTPUT ON/OFF SWITCH
IC555 NJM2073 HEADPHONE AMP
Q605 2SA1576 BUFFER
Q608 2SA1576 BUFFER
Q551 2SA1576 BUFFER
Q606 FMG4 MUTE
Q552 2SA1576 BUFFER
Q553 2SC4081 MUTE
Q554 2SC4081 MUTE
D553 DAN202U
Q560 DTC144EU INPUT SELECT & FADER CONTROL
Q603 2SC4081 RIPPLE FILTER
Q555 2SC4081 MUTE
Q556 2SC4081 MUTE
D552 DAN202U
D554 MA110
Q562 FMG2 Q561 IMX1 INPUT SELECT & FADER CONTROL
Q607 DTC143TU INPUT SELECT & FADER CONTROL
D551 MA110 Q559 2SA1576 POWER-OFF MUTE
Q557 DTC144EU MUTE-OFF DELAY
Q558 DTA144EU MUTE-OFF DELAY
L-CH R-CH
TO VA-46(1/3) BOARD (VIDEO BLOCK) (See page 152.)
a fsc
b fsc GND
c JACK IN/OUT
d AU 5V
e AUDIO L IN/OUT
f AUDIO GND
g AUDIO R IN/OUT
h AU GND
i MONO/STEREO DET
j VI SWP
k SP/LP
l FADER CONT
m REC AFM RF
n PB AFM RF
o RF GND
p CAM/LINE
q SWR
s SYSTEM RESET
t BI1
u BI2
v HIFI/WIND
w JC MONO/STE DET
x SCK
y A DATA
z M UNREG
a' AU SP STB
b' A MUTE
c' RFU DC
CN552
1 HP L OUT
2 HP GND
3 HP R OUT
TO FC-28 BOARD CN603 (See page 183.)
VA-45 BOARD (1/3)

no mark : REC/PB mode (VTR)
( ) : REC mode
〈 〉 : PB mode
✻ : Impossible to measure the voltage at the marked points.

• Signal path

	AUDIO Signal
REC	➡
PB	⇨

DIODE

D415	8-71. 421-32	DIODE MA141A-TX
D417	8-719-941-86	DIODE DAN202U
D419	8-719-941-86	DIODE DAN202U
D420	8-719-941-86	DIODE DAN202U
D422	8-719-941-86	DIODE DAN202U
D423	8-719-941-86	DIODE DAN202U
D427	8-719-941-86	DIODE DAN202U
D428	8-719-941-86	DIODE DAN202U
D551	8-719-404-46	DIODE MA110
D552	8-719-941-86	DIODE DAN202U
D553	8-719-941-86	DIODE DAN202U
D554	8-719-404-46	DIODE MA110
D650	8-719-941-86	DIODE DAN202U
D651	8-719-941-86	DIODE DAN202U
D652	8-719-941-86	DIODE DAN202U
D654	8-719-941-86	DIODE DAN202U
D655	8-719-800-76	DIODE 1SS123
D656	8-719-941-86	DIODE DAN202U
D657	8-719-800-76	DIODE 1SS123
D658	8-719-941-86	DIODE DAN202U
D659	8-719-941-86	DIODE DAN202U
D661	8-719-941-86	DIODE DAN202U
D662	8-719-951-22	DIODE IMN10
D663	8-719-941-86	DIODE DAN202U
D664	8-719-941-86	DIODE DAN202U
D667	8-719-951-22	DIODE IMN10
D669	8-719-978-43	DIODE DTZ9.1B
D670	8-719-978-43	DIODE DTZ9.1B
D671	8-719-978-43	DIODE DTZ9.1B
D672	8-719-978-43	DIODE DTZ9.1B
D674	8-719-978-43	DIODE DTZ9.1B
D675	8-719-978-43	DIODE DTZ9.1B
D676	8-719-978-43	DIODE DTZ9.1B
D677	8-719-978-43	DIODE DTZ9.1B
D678	8-719-978-43	DIODE DTZ9.1B
D679	8-719-978-43	DIODE DTZ9.1B
D680	8-719-978-43	DIODE DTZ9.1B
D681	8-719-978-43	DIODE DTZ9.1B
D690	8-719-941-86	DIODE DAN202U

IC

IC416	8-759-710-09	IC NJM2233AM
IC551	8-759-009-07	IC MC14053BF
IC553	8-759-998-98	IC LM358DR
IC554	8-759-932-54	IC MC14066BF
IC555	8-759-701-02	IC NJM2073M
IC650	8-752-036-19	IC CXA1207R
IC651	8-752-036-20	IC CXA1208R
IC653	8-759-925-60	IC BA401
IC654	8-752-009-51	IC CX20095A
IC656	8-759-320-76	IC HA118070FP
IC657	8-752-334-44	IC CXL5502M
IC658	8-752-332-68	IC CXL5502M
IC659	8-759-710-29	IC NJM2235M
IC660	8-759-710-07	IC NJM2234M
IC661	8-759-710-07	IC NJM2234M
IC662	8-759-009-22	IC MC14094BF
IC663	8-759-710-29	IC NJM2235M

TRANSISTOR

Q411	8-729-905-23	TRANSISTOR 2SA1576-R
Q415	8-729-905-23	TRANSISTOR 2SA1576-R
Q416	8-729-905-35	TRANSISTOR 2SC4081-R
Q417	8-729-905-12	TRANSISTOR DTA144EU
Q418	8-729-905-35	TRANSISTOR 2SC4081-R
Q421	8-729-905-23	TRANSISTOR 2SA1576-R
Q426	8-729-905-35	TRANSISTOR 2SC4081-R
Q427	8-729-905-35	TRANSISTOR 2SC4081-R
Q433	8-729-905-35	TRANSISTOR 2SC4081-R
Q434	8-729-905-23	TRANSISTOR 2SA1576-R
Q444	8-729-905-35	TRANSISTOR 2SC4081-R
Q446	8-729-905-35	TRANSISTOR 2SC4081-R
Q447	8-729-905-12	TRANSISTOR DTA144EU
Q452	8-729-905-18	TRANSISTOR DTC144EU
Q469	8-729-905-18	TRANSISTOR DTC144EU
Q490	8-729-905-35	TRANSISTOR 2SC4081-R
Q491	8-729-905-12	TRANSISTOR DTA144EU
Q493	8-729-905-12	TRANSISTOR DTA144EU
Q494	8-729-905-35	TRANSISTOR 2SC4081-R
Q496	8-729-905-35	TRANSISTOR 2SC4081-R
Q498	8-729-905-18	TRANSISTOR DTC144EU
Q551	8-729-905-23	TRANSISTOR 2SA1576-R
Q552	8-729-905-23	TRANSISTOR 2SA1576-R
Q553	8-729-905-35	TRANSISTOR 2SC4081-R
Q554	8-729-905-35	TRANSISTOR 2SC4081-R
Q555	8-729-905-35	TRANSISTOR 2SC4081-R
Q556	8-729-905-35	TRANSISTOR 2SC4081-R
Q557	8-729-905-18	TRANSISTOR DTC144EU

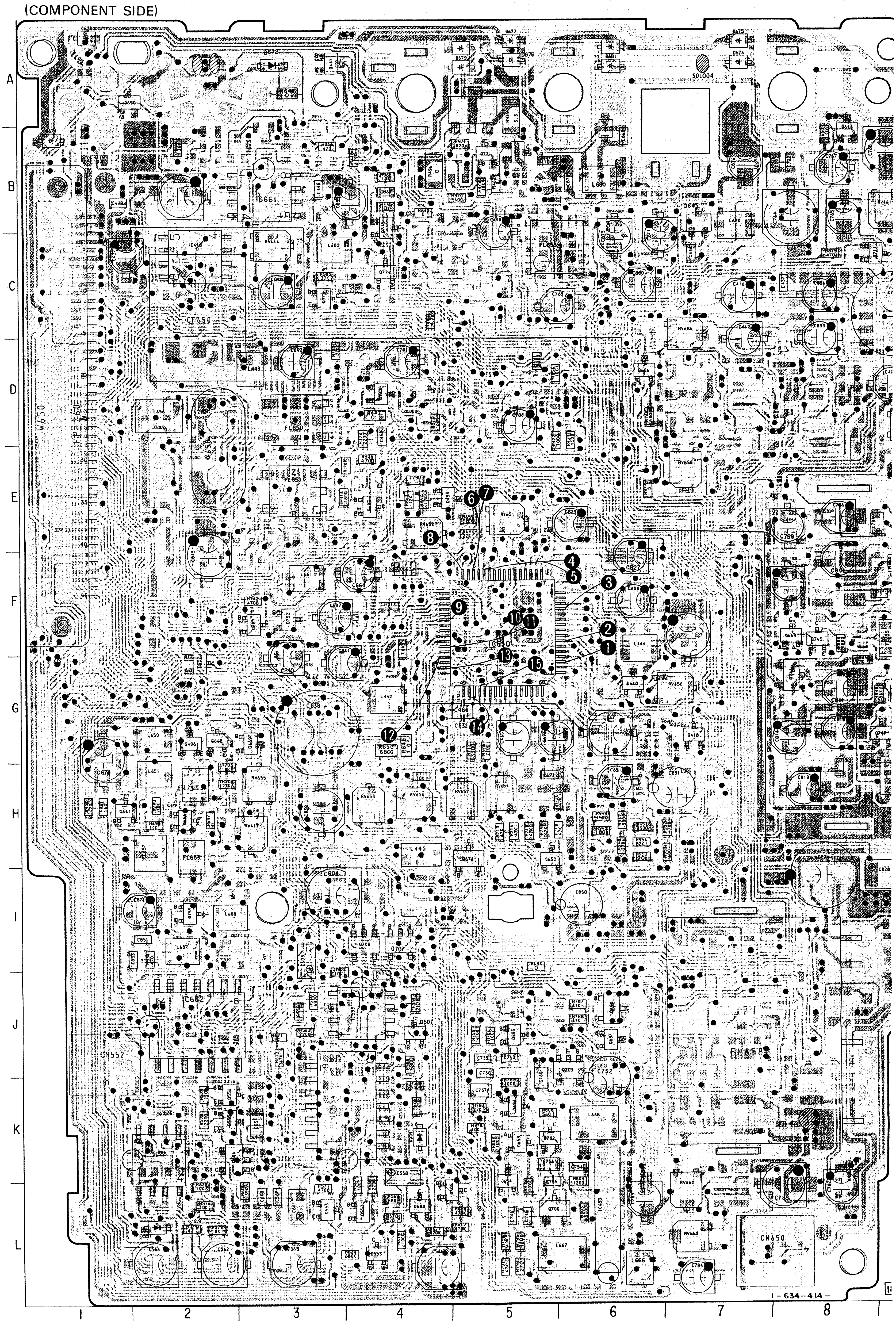
Q558	8-729-905-12	TRANSISTOR DTA144EU
Q559	8-729-905-23	TRANSISTOR 2SA1576-R
Q560	8-729-905-18	TRANSISTOR DTC144EU
Q561	8-729-907-26	TRANSISTOR IMX1
Q562	8-729-904-07	TRANSISTOR FMG2
Q603	8-729-905-35	TRANSISTOR 2SC4081-R
Q606	8-729-902-93	TRANSISTOR FMG4
Q607	8-729-922-95	TRANSISTOR DTC143TU
Q608	8-729-905-23	TRANSISTOR 2SA1576-R
Q641	8-729-905-12	TRANSISTOR DTA144EU
Q643	8-729-905-23	TRANSISTOR 2SA1576-R
Q644	8-729-905-12	TRANSISTOR DTA144EU
Q645	8-729-900-89	TRANSISTOR DTC144ES
Q645	8-729-905-18	TRANSISTOR DTC144EU
Q655	8-729-905-12	TRANSISTOR DTA144EU
Q657	8-729-905-35	TRANSISTOR 2SC4081-R
Q658	8-729-905-35	TRANSISTOR 2SC4081-R

Q659	8-729-905-35
Q660	8-729-905-35
Q661	8-729-905-12
Q662	*8-729-905-12*
Q665	8-729-905-45
Q666	8-729-905-23
Q668	8-729-905-35
Q669	8-729-905-12
Q670	8-729-903-10
Q671	8-729-905-23
Q674	8-729-162-44
Q675	8-729-905-18
Q676	8-729-905-12
Q677	8-729-905-12
Q678	8-729-202-38
Q679	8-729-202-38
Q681	8-729-905-35

VA-45 (Y/CHROMA SIGNAL PROCESS, AUDIO SIGNAL PROCESS) PRINTED WIRING BOARD

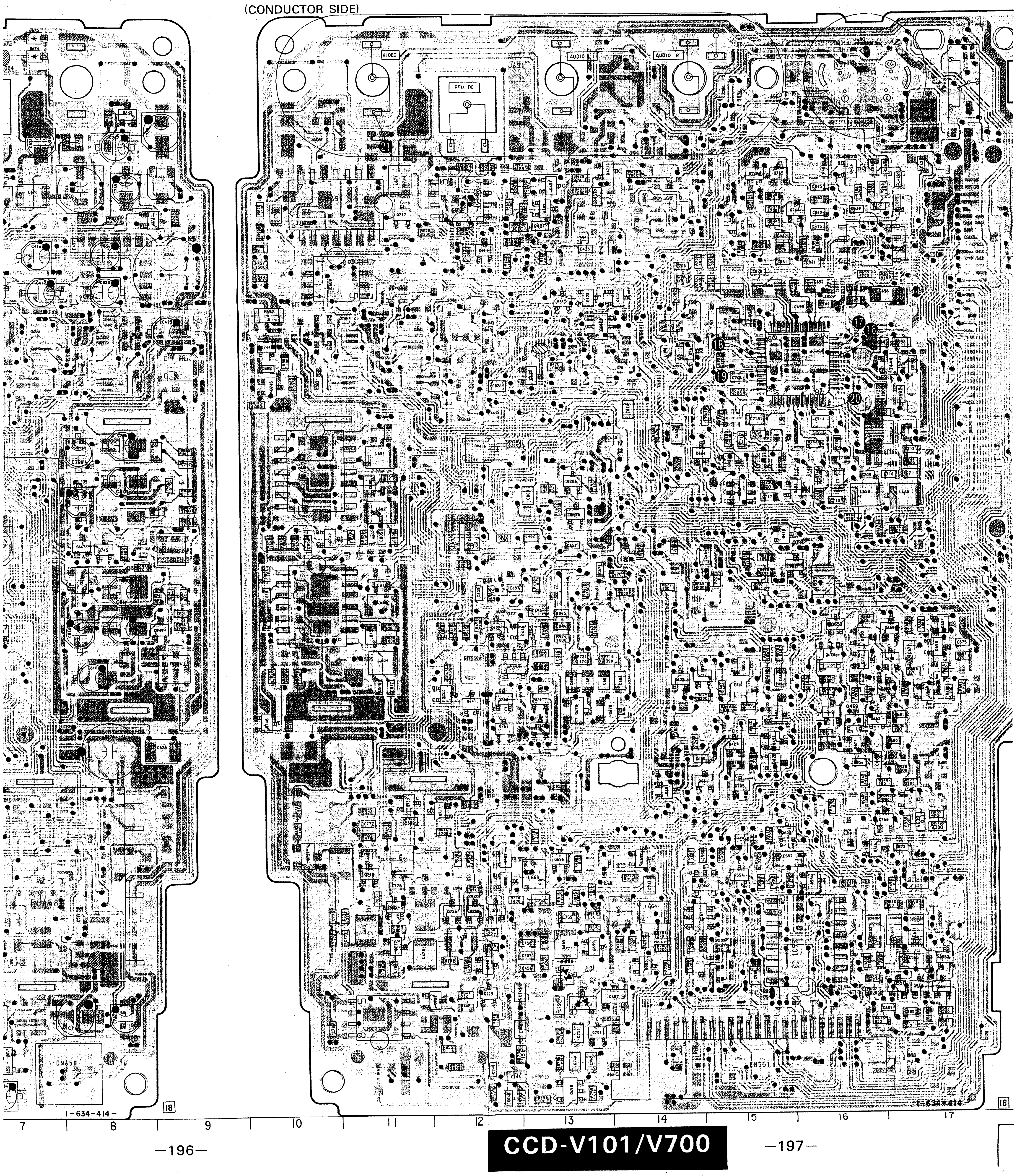
—Ref. No. VA-45 BOARD: 1000 series—

VA-45 BOARD
(COMPONENT SIDE)



TOR DTA144EU	Q659	8-729-905-35	TRANSISTOR 2SC4081-R	Q683	8-729-905-23	TRANSISTOR 2SA1576-R	Q707	8-729-904-20	TRANSISTOR FMA2	Q738	8-729-905-35	TRANSISTOR 2SC4081-R	Q764	8-729-905-35	TRANSISTOR
TOR 2SA1576-R	Q660	8-729-905-35	TRANSISTOR 2SC4081-R	Q686	8-729-905-35	TRANSISTOR 2SC4081-R	Q708	8-729-904-07	TRANSISTOR FMG2	Q742	8-729-905-23	TRANSISTOR 2SA1576-R	Q765	8-729-905-35	TRANSISTOR
TOR DTC144EU	Q661	8-729-905-12	TRANSISTOR DTA144EU	Q687	8-729-905-35	TRANSISTOR 2SC4081-R	Q711	8-729-905-12	TRANSISTOR DTA144EU	Q743	8-729-905-35	TRANSISTOR 2SC4081-R	Q766	8-729-905-23	TRANSISTOR
TOR IMX1	Q662	8-729-905-12	TRANSISTOR DTA144EU	Q690	8-729-162-44	TRANSISTOR 2SB624-BV4	Q712	8-729-905-12	TRANSISTOR DTA144EU	Q744	8-729-905-35	TRANSISTOR 2SC4081-R	Q767	8-729-905-18	TRANSISTOR
TOR FMG2	Q665	8-729-905-45	TRANSISTOR DTA143EU	Q691	8-729-905-18	TRANSISTOR DTC144EU	Q715	8-729-905-18	TRANSISTOR DTC144EU	Q745	8-729-905-18	TRANSISTOR DTC144EU	Q770	8-729-101-07	TRANSISTOR
TOR 2SC4081-R	Q666	8-729-905-23	TRANSISTOR 2SA1576-R	Q692	8-729-905-18	TRANSISTOR DTC144EU	Q717	8-729-905-23	TRANSISTOR 2SA1576-R	Q746	8-729-162-44	TRANSISTOR 2SB624-BV4	Q771	8-729-905-35	TRANSISTOR
TOR FMG4	Q668	8-729-905-35	TRANSISTOR 2SC4081-R	Q693	8-729-905-35	TRANSISTOR 2SC4081-R	Q719	8-729-905-18	TRANSISTOR DTC144EU	Q747	8-729-905-23	TRANSISTOR 2SA1576-R	Q772	8-729-905-12	TRANSISTOR
TOR DTC143TU	Q669	8-729-905-12	TRANSISTOR DTA144EU	Q694	8-729-905-35	TRANSISTOR 2SC4081-R	Q721	8-729-202-38	TRANSISTOR 2SC3326N	Q748	8-729-905-35	TRANSISTOR 2SC4081-R	Q773	8-729-905-12	TRANSISTOR
TOR 2SA1576-R	Q670	8-729-903-10	TRANSISTOR FMW1	Q695	8-729-905-12	TRANSISTOR DTA144EU	Q722	8-729-905-35	TRANSISTOR 2SC4081-R	Q752	8-729-905-23	TRANSISTOR 2SA1576-R	Q774	8-729-905-35	TRANSISTOR
TOR DTA144EU	Q671	8-729-905-23	TRANSISTOR 2SA1576-R	Q696	8-729-905-18	TRANSISTOR DTC144EU	Q724	8-729-905-23	TRANSISTOR 2SA1576-R	Q753	8-729-904-20	TRANSISTOR FMA2	Q775	8-729-905-18	TRANSISTOR
TOR 2SA1576-R	Q674	8-729-162-44	TRANSISTOR 2SB624-BV4	Q697	8-729-905-35	TRANSISTOR 2SC4081-R	Q727	8-729-905-45	TRANSISTOR DTA143EU	Q757	8-729-905-35	TRANSISTOR 2SC4081-R	Q776	8-729-905-12	TRANSISTOR
TOR DTA144EU	Q675	8-729-905-18	TRANSISTOR DTC144EU	Q698	8-729-903-10	TRANSISTOR FMW1	Q728	8-729-905-23	TRANSISTOR 2SA1576-R	Q758	8-729-905-23	TRANSISTOR 2SA1576-R	Q777	8-729-905-23	TRANSISTOR
TOR DTC144ES	Q676	8-729-905-12	TRANSISTOR DTA144EU	Q700	8-729-202-38	TRANSISTOR 2SC3326N	Q729	8-729-905-35	TRANSISTOR 2SC4081-R	Q759	8-729-905-35	TRANSISTOR 2SC4081-R	Q786	8-729-905-18	TRANSISTOR
TOR DTC144EU	Q677	8-729-905-12	TRANSISTOR DTA144EU	Q701	8-729-905-35	TRANSISTOR 2SC4081-R	Q730	8-729-905-23	TRANSISTOR 2SA1576-R	Q760	8-729-905-12	TRANSISTOR DTA144EU			
TOR DTA144EU	Q678	8-729-202-38	TRANSISTOR 2SC3326N	Q702	8-729-905-35	TRANSISTOR 2SC4081-R	Q731	8-729-905-12	TRANSISTOR DTA144EU	Q761	8-729-905-18	TRANSISTOR DTC144EU			
TOR 2SC4081-R	Q679	8-729-202-38	TRANSISTOR 2SC3326N	Q703	8-729-903-10	TRANSISTOR FMW1	Q732	8-729-905-35	TRANSISTOR 2SC4081-R	Q762	8-729-905-18	TRANSISTOR DTC144EU			
TOR 2SC4081-R	Q681	8-729-905-35	TRANSISTOR 2SC4081-R	Q705	8-729-905-12	TRANSISTOR DTA144EU	Q737	8-729-905-35	TRANSISTOR 2SC4081-R	Q763	8-729-905-18	TRANSISTOR DTC144EU			

VA–45 BOARD
(CONDUCTOR SIDE)



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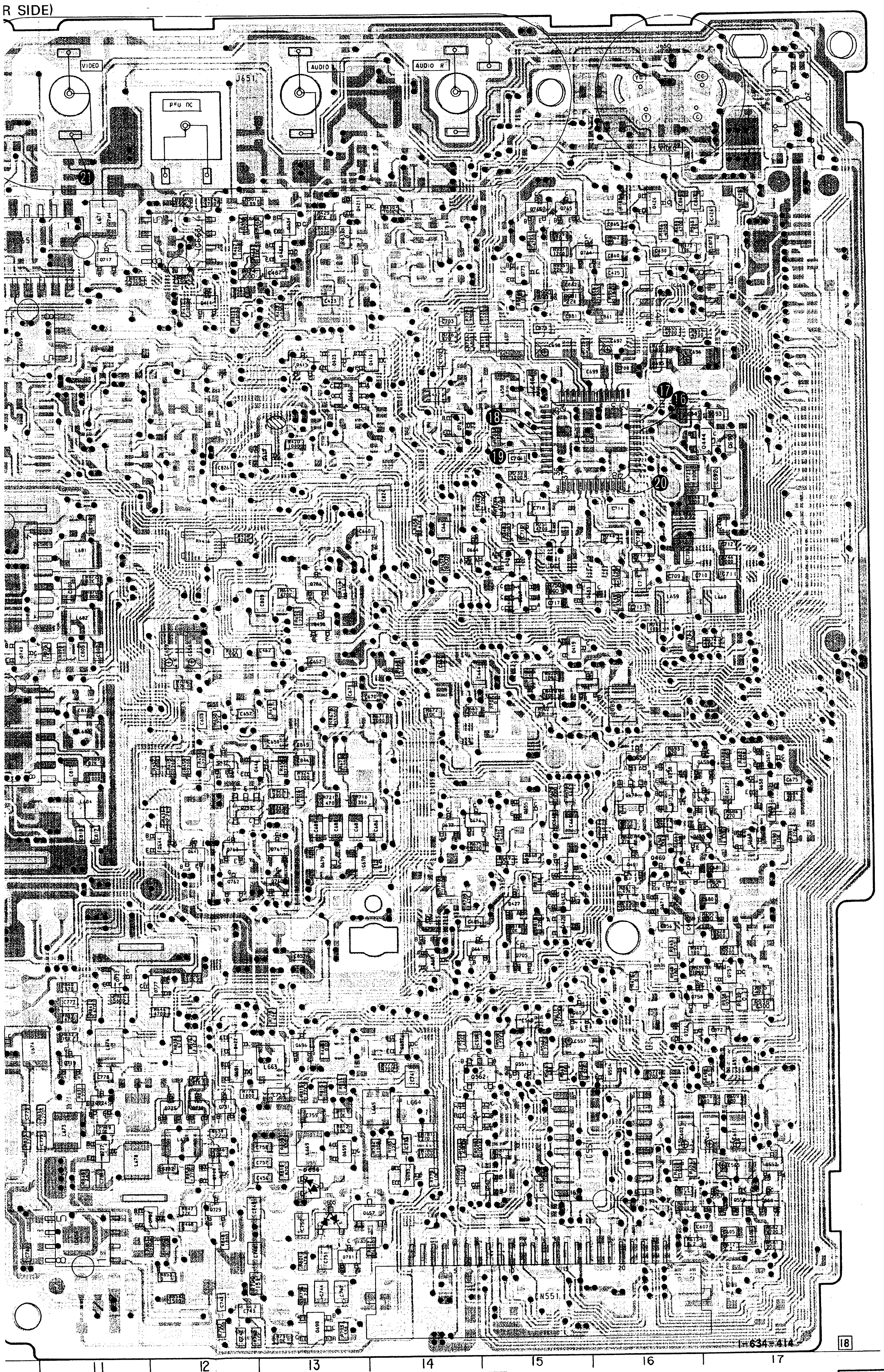
	-729-905-35	TRANSISTOR 2SC4081-R
	-729-905-35	TRANSISTOR 2SC4081-R
	-729-162-44	TRANSISTOR 2SB624-BV4
	-729-905-18	TRANSISTOR DTC144EU
	-729-905-18	TRANSISTOR DTC144EU
	-729-905-35	TRANSISTOR 2SC4081-R
	-729-905-35	TRANSISTOR 2SC4081-R
	-729-905-12	TRANSISTOR DTA144EU
	-729-905-18	TRANSISTOR DTC144EU
	-729-905-35	TRANSISTOR 2SC4081-R
	-729-903-10	TRANSISTOR FMW1
	-729-202-38	TRANSISTOR 2SC3326N
	-729-905-35	TRANSISTOR 2SC4081-R
	-729-905-35	TRANSISTOR 2SC4081-R
	-729-903-10	TRANSISTOR FMW1
	-729-905-12	TRANSISTOR DTA144EU
Q707	8-729-904-20	TRANSISTOR FMA2
Q708	8-729-904-07	TRANSISTOR FMG2
Q711	8-729-905-12	TRANSISTOR DTA144EU
Q712	8-729-905-12	TRANSISTOR DTA144EU
Q715	8-729-905-18	TRANSISTOR DTC144EU
Q717	8-729-905-23	TRANSISTOR 2SA1576-R
Q719	8-729-905-18	TRANSISTOR DTC144EU
Q721	8-729-202-38	TRANSISTOR 2SC3326N
Q722	8-729-905-35	TRANSISTOR 2SC4081-R
Q724	8-729-905-23	TRANSISTOR 2SA1576-R
Q727	8-729-905-45	TRANSISTOR DTA143EU
Q728	8-729-905-23	TRANSISTOR 2SA1576-R
Q729	8-729-905-35	TRANSISTOR 2SC4081-R
Q730	8-729-905-23	TRANSISTOR 2SA1576-R
Q731	8-729-905-12	TRANSISTOR DTA144EU
Q732	8-729-905-35	TRANSISTOR 2SC4081-R
Q737	8-729-905-35	TRANSISTOR 2SC4081-R
Q738	8-729-905-35	TRANSISTOR 2SC4081-R
Q742	8-729-905-23	TRANSISTOR 2SA1576-R
Q743	8-729-905-35	TRANSISTOR 2SC4081-R
Q744	8-729-905-35	TRANSISTOR 2SC4081-R
Q745	8-729-905-18	TRANSISTOR DTC144EU
Q746	8-729-162-44	TRANSISTOR 2SB624-BV4
Q747	8-729-905-23	TRANSISTOR 2SA1576-R
Q748	8-729-905-35	TRANSISTOR 2SC4081-R
Q752	8-729-905-23	TRANSISTOR 2SA1576-R
Q753	8-729-904-20	TRANSISTOR FMA2
Q757	8-729-905-35	TRANSISTOR 2SC4081-R
Q758	8-729-905-23	TRANSISTOR 2SA1576-R
Q759	8-729-905-35	TRANSISTOR 2SC4081-R
Q760	8-729-905-12	TRANSISTOR DTA144EU
Q761	8-729-905-18	TRANSISTOR DTC144EU
Q762	8-729-905-18	TRANSISTOR DTC144EU
Q763	8-729-905-18	TRANSISTOR DTC144EU
Q764	8-729-905-35	TRANSISTOR 2SC4081-R
Q765	8-729-905-35	TRANSISTOR 2SC4081-R
Q766	8-729-905-23	TRANSISTOR 2SA1576-R
Q767	8-729-905-18	TRANSISTOR DTC144EU
Q770	8-729-101-07	TRANSISTOR 2SB798-L
Q771	8-729-905-35	TRANSISTOR 2SC4081-R
Q772	8-729-905-12	TRANSISTOR DTA144EU
Q773	8-729-905-12	TRANSISTOR DTA144EU
Q774	8-729-905-35	TRANSISTOR 2SC4081-R
Q775	8-729-905-18	TRANSISTOR DTC144EU
Q776	8-729-905-12	TRANSISTOR DTA144EU
Q777	8-729-905-23	TRANSISTOR 2SA1576-R
Q786	8-729-905-18	TRANSISTOR DTC144EU

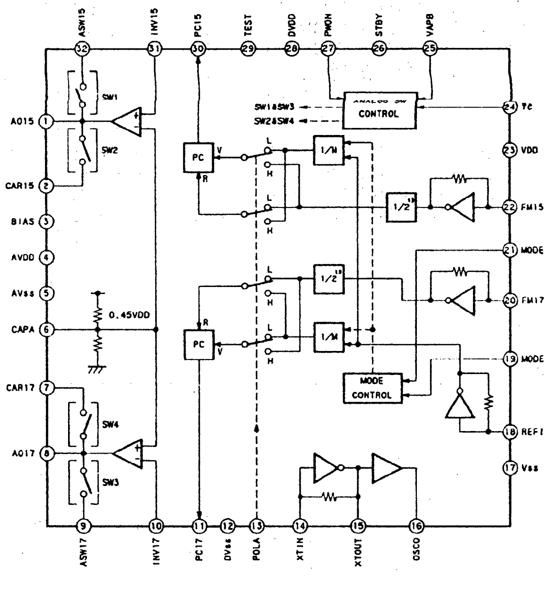
ARD
R SIDE)



AU-60 BOARD, COMPLETE

		DIODE
D401	8-719-404-46	DIODE MA110
		IC
IC401	8-752-334-42	IC CXD2106Q
IC402	8-759-009-22	IC MC14094BF
		TRANSISTOR
Q401	8-729-921-58	TRANSISTOR DTA144TU
Q405	8-729-905-18	TRANSISTOR DTC144EU
Q406	8-729-905-12	TRANSISTOR DTA144EU
Q407	8-729-905-18	TRANSISTOR DTC144EU
Q409	8-729-905-35	TRANSISTOR 2SC4081-R
Q410	8-729-905-35	TRANSISTOR 2SC4081-R
Q411	8-729-905-23	TRANSISTOR 2SA1576-R
Q413	8-729-905-35	TRANSISTOR 2SC4081-R
Q414	8-729-905-35	TRANSISTOR 2SC4081-R
Q415	8-729-903-10	TRANSISTOR FMW1
Q416	8-729-905-35	TRANSISTOR 2SC4081-R
Q417	8-729-905-23	TRANSISTOR 2SA1576-R
Q421	8-729-905-35	TRANSISTOR 2SC4081-R
Q426	8-729-905-12	TRANSISTOR DTA144EU
Q427	8-729-905-18	TRANSISTOR DTC144EU
Q433	8-729-905-35	TRANSISTOR 2SC4081-R
Q434	8-729-905-35	TRANSISTOR 2SC4081-R
Q436	8-729-905-12	TRANSISTOR DTA144EU
Q437	8-729-905-35	TRANSISTOR 2SC4081-R
Q501	8-729-905-35	TRANSISTOR 2SC4081-R
Q502	8-729-905-35	TRANSISTOR 2SC4081-R

AU-60 BOARD IC401 CXD2106Q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INV15
PC15
TEST
DVDD
PWON
STBY
VAPB
32
31
30
29
28
27
26
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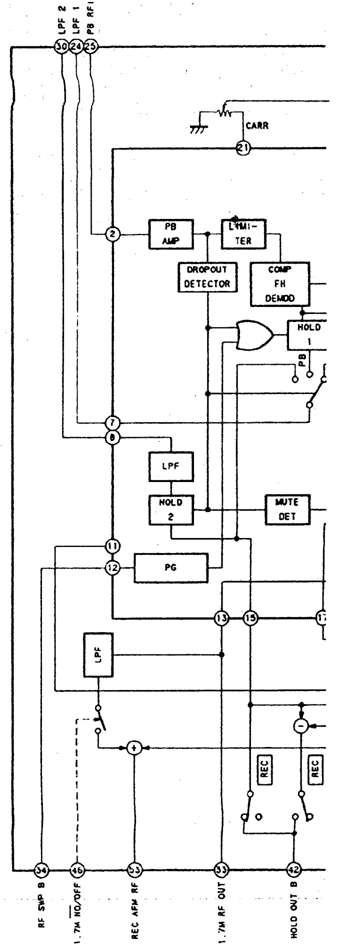
SW2
A015
1
CAR15
2
BIAS
3
AVDD
4
AVss
5
CAPA
6
CAR17
7
A017
8
SW4
SW3
0.45VDD
SW1&SW3
SW2&SW4
ANALOG SW
CONTROL
24
Tc
23
VDD
22
FM15
21
MODE1
20
FM17
19
MODEφ
18
REFIN
17
Vss
PC
V
R
L
H
1/N
1/2
MODE
CONTROL
9
10
11
12
13
14
15
16
ASW17
INV17
PC17
DVss
POLA
XTIN
XTOUT
OSCO

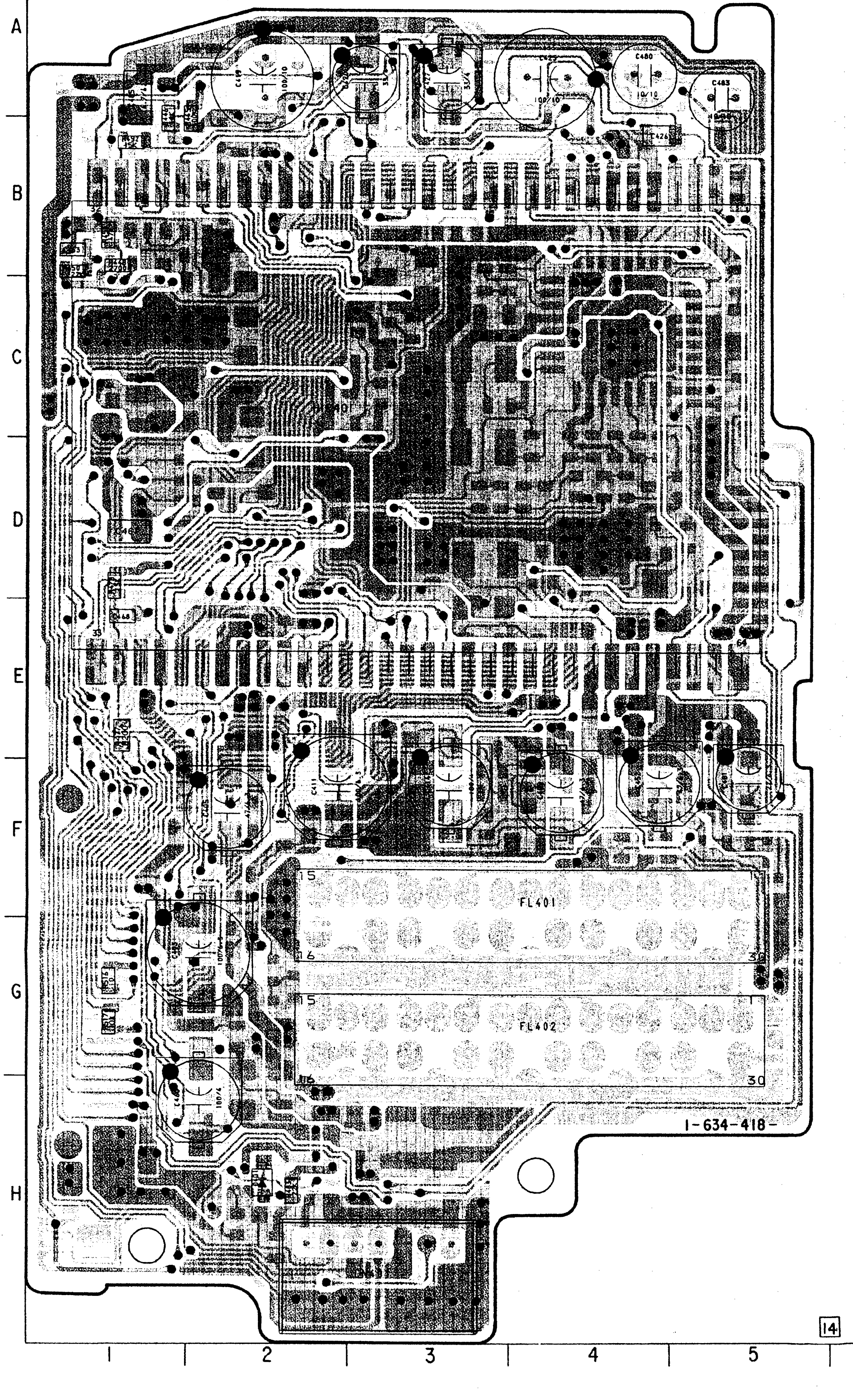
AU-60 BOARD HIC401 SBX1506-0


LPF 2 B
LPF 1 B
PB RFIN B
30
24
25
CARR
21
2
PB
AMP
LIMI-
TER
DROPOUT
DETECTOR
COMP
FH
DEMOD
HOLD
1
PB
7
8
LPF
HOLD
2
MUTE
DET
11
12
PG
13
15
LPF
REC
REC
34
46
53
33
42
RF SWP B
1.7M NO/OFF
REC AFM RF
1.7M RF OUT
HOLD OUT B

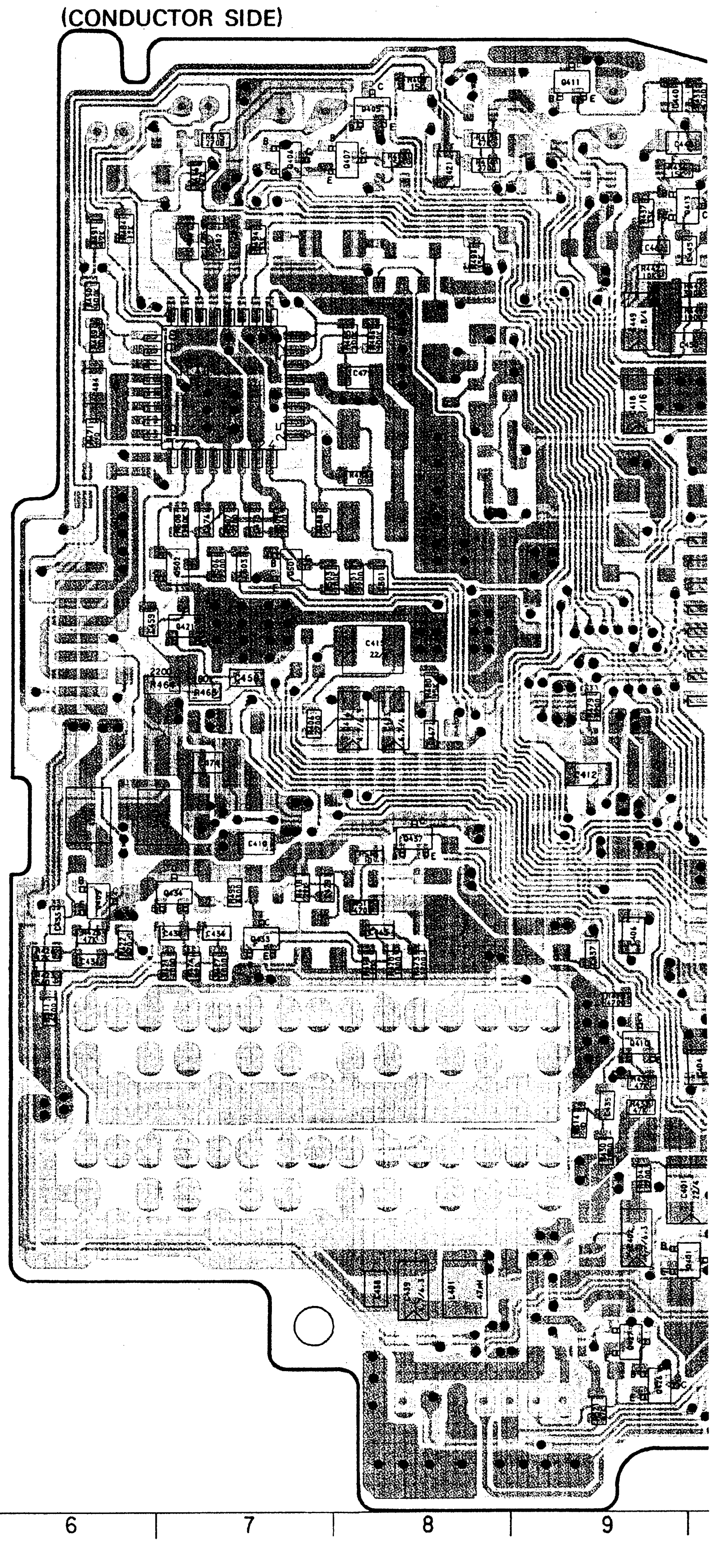
AU-60 (ATF/AFM PROCESS), MC-43 (MIC AMP), MJ-41 (HEADPHONE/MIC PLUG IN POWER JACK) PRINTED WIRING BOARD

—Ref. No. AU-60, MC-43, MJ-41 BOARDS : 6000 series—

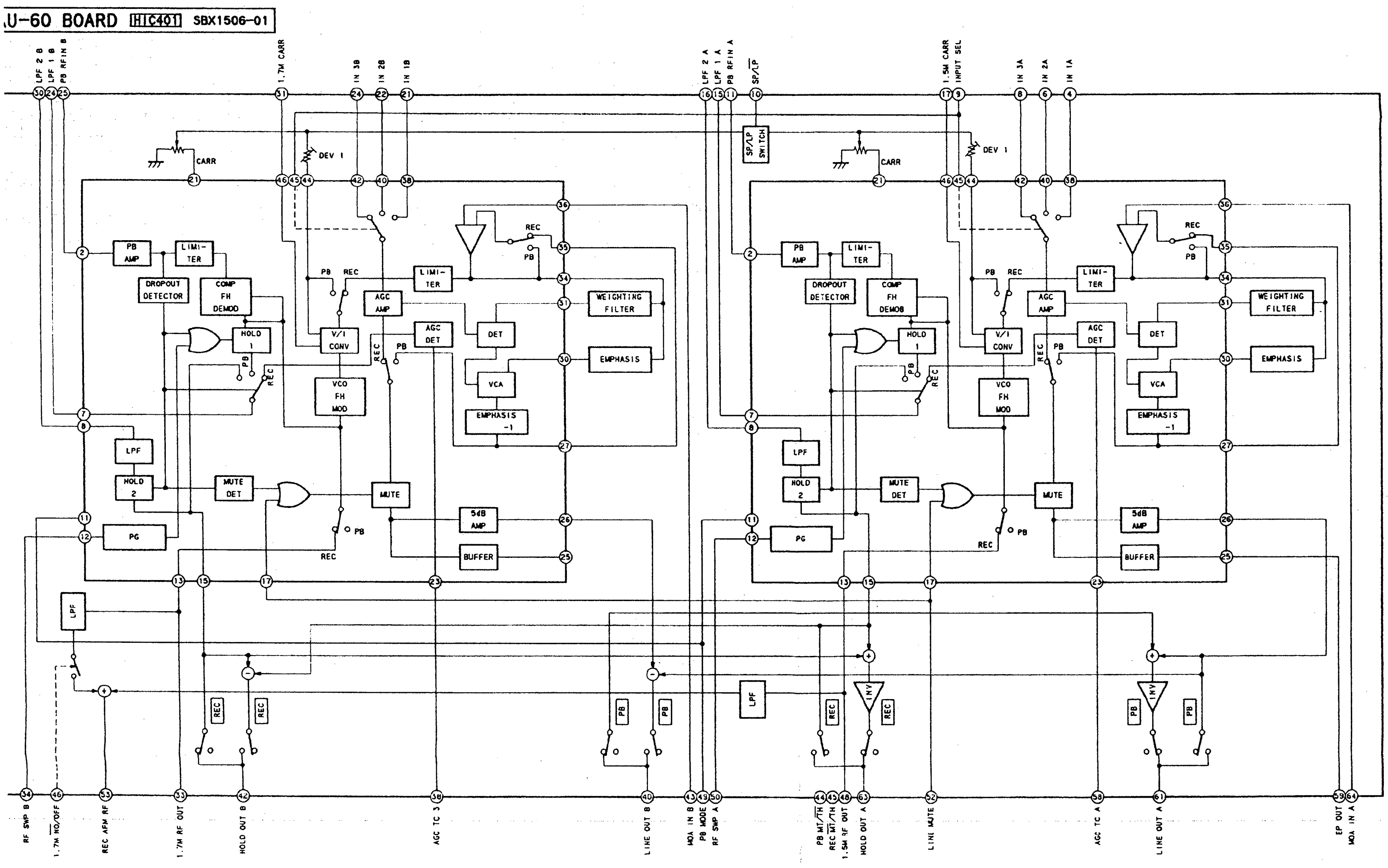
AU-60 BOARD
(COMPONENT SIDE)

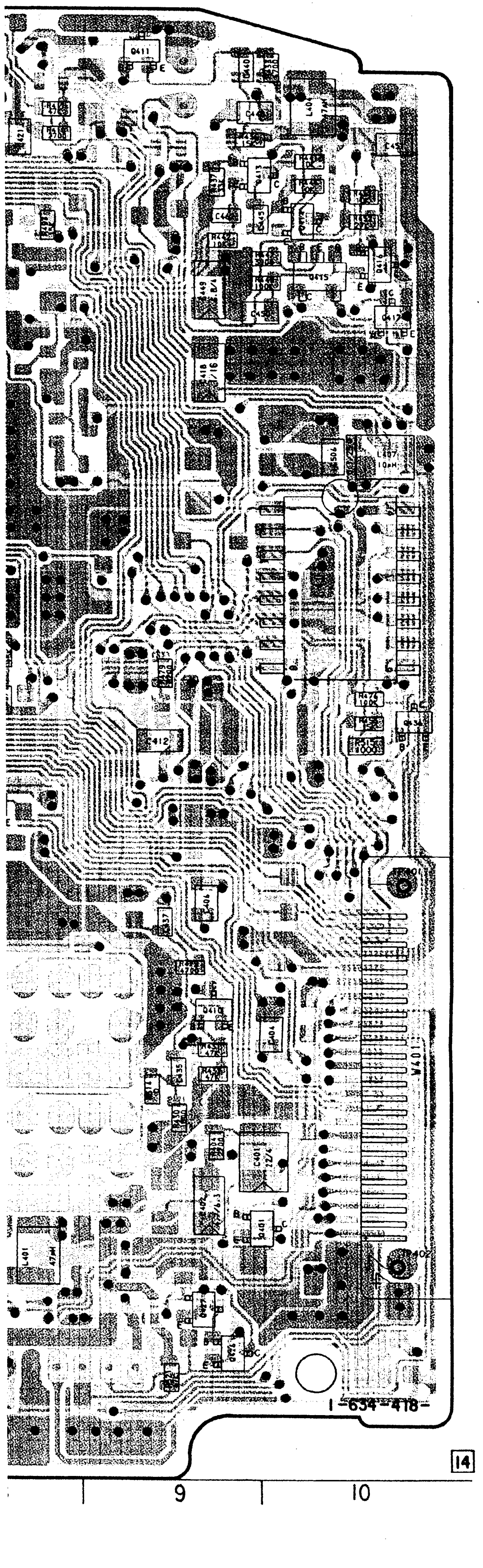

A
B
C
D
E
F
G
H
FL401
FL402
15
30
1-634-418-
14
1
2
3
4
5

AU-60 BOARD
(CONDUCTOR SIDE)



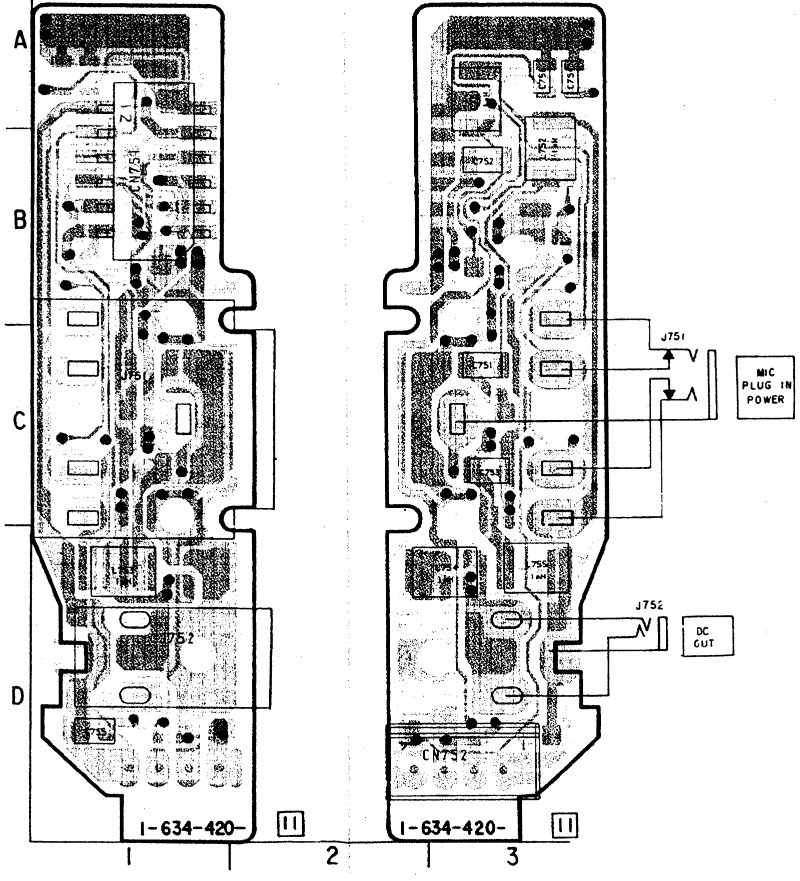
U-60 BOARD HIC401 SBX1506-01


LPF 2 B
LPF 1 B
PB RF IN B
1.7M CARR
IN 3B
IN 2B
IN 1B
LPF 2 A
LPF 1 A
PB RF IN A
SP/LP
1.5M CARR
INPUT SEL
IN 3A
IN 2A
IN 1A
SP/LP SWITCH
CARR
DEV 1
PB AMP
LIMITER
DROPOUT DETECTOR
COMP FH DEMOD
HOLD 1
V/I CONV
VCO FH MOD
AGC AMP
AGC DET
DET
VCA
EMPHASIS -1
WEIGHTING FILTER
EMPHASIS
LPF
HOLD 2
MUTE DET
MUTE
5dB AMP
BUFFER
PG
REC
PB
INV
RF SWP B
1.7M MOD/OFF
REC 1.5M RF
1.7M RF OUT
HOLD OUT B
AGC TC B
LINE OUT B
MOA IN B
PB MODE
RF SWP A
PB MUTE
REC 1.7M
1.5M RF OUT
HOLD OUT A
LINE MUTE
AGC TC A
LINE OUT A
EP OUT
MOA IN A


IC401
1-634-418-
14
9
10

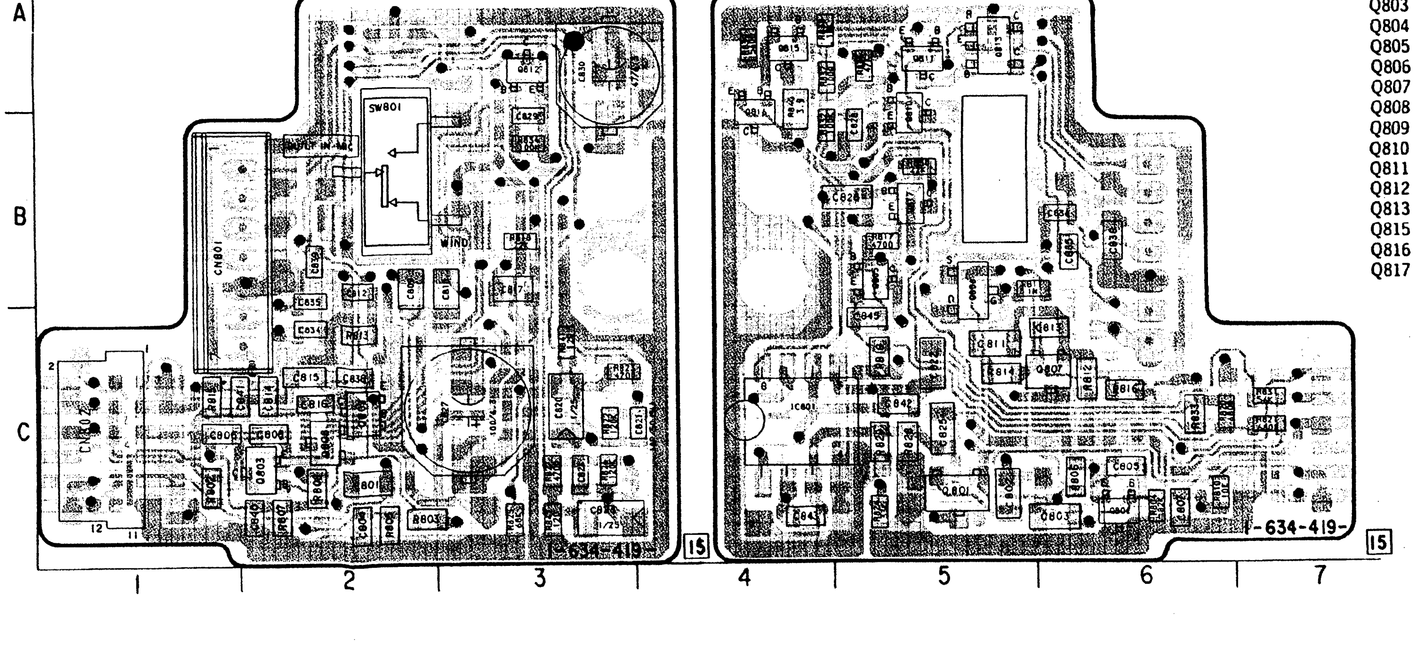
MJ-40 BOARD
(COMPONENT SIDE)

MJ-40 BOARD
(CONDUCTOR SIDE)


A
B
C
D
CN751
J751
J752
CN752
MIC PLUG IN POWER
DC OUT
1-634-420-
11
1
2
3

MC-43 BOARD
(COMPONENT SIDE)

MC-43 BOARD
(CONDUCTOR SIDE)


A
B
C
SW801
CN801
IC801
1-634-419-
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1
2
3
4
5
6
7

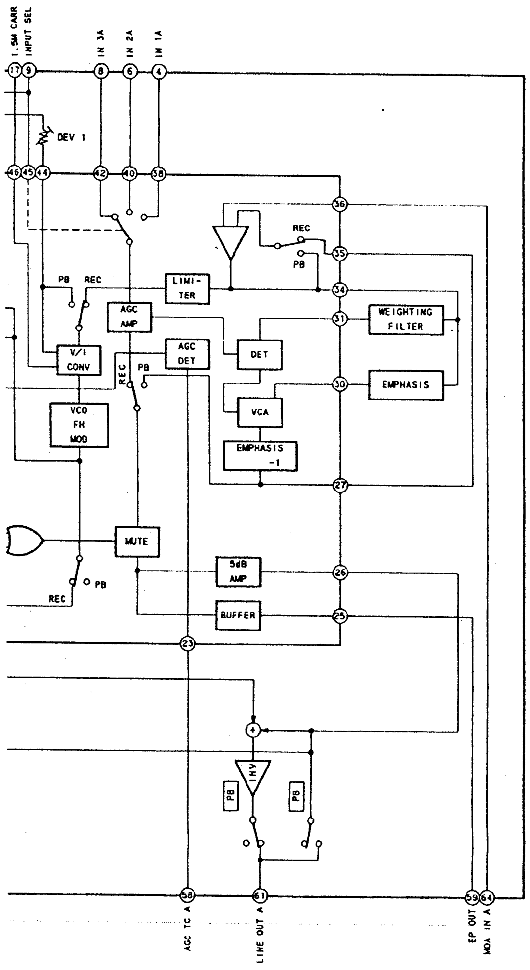
MC-43 BOARD, COMPLETE

IC

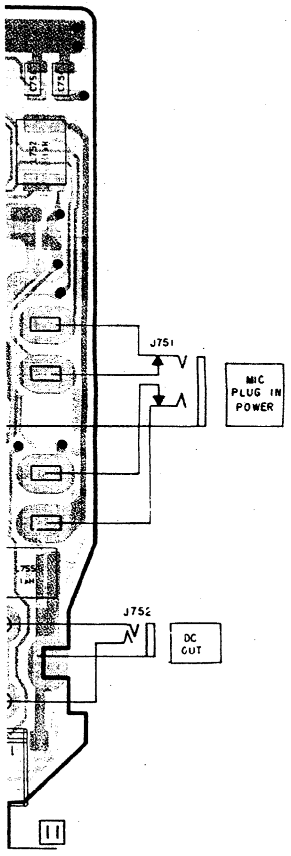
IC801	8-759-111-46	IC UPC4

TRANSISTO

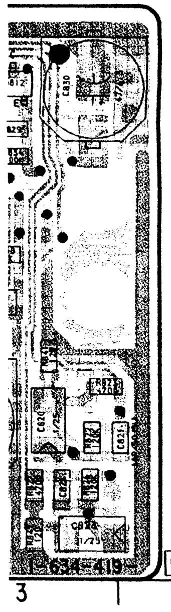
Q801	8-729-109-44	TRANSIS
Q802	8-729-905-35	TRANSIS
Q803	8-729-905-12	TRANSIS
Q804	8-729-905-23	TRANSIS
Q805	8-729-905-35	TRANSIS
Q806	8-729-109-44	TRANSIS
Q807	8-729-905-35	TRANSIS
Q808	8-729-905-12	TRANSIS
Q809	8-729-905-23	TRANSIS
Q810	8-729-905-35	TRANSIS
Q811	8-729-905-12	TRANSIS
Q812	8-729-905-35	TRANSIS
Q813	8-729-904-07	TRANSIS
Q815	8-729-905-35	TRANSIS
Q816	8-729-905-23	TRANSIS
Q817	8-729-905-35	TRANSIS


INPUT SEL
IN 3A
IN 2A
IN 1A
DEV 1
PB
REC
LIMI-TER
AGC AMP
V/I CONV
AGC DET
DET
WEIGHTING FILTER
EMPHASIS
VCA
EMPHASIS -1
VCO FM MOD
MUTE
5dB AMP
BUFFER
INV
AGC TC A
LINE OUT A
EP OUT
MOA IN A

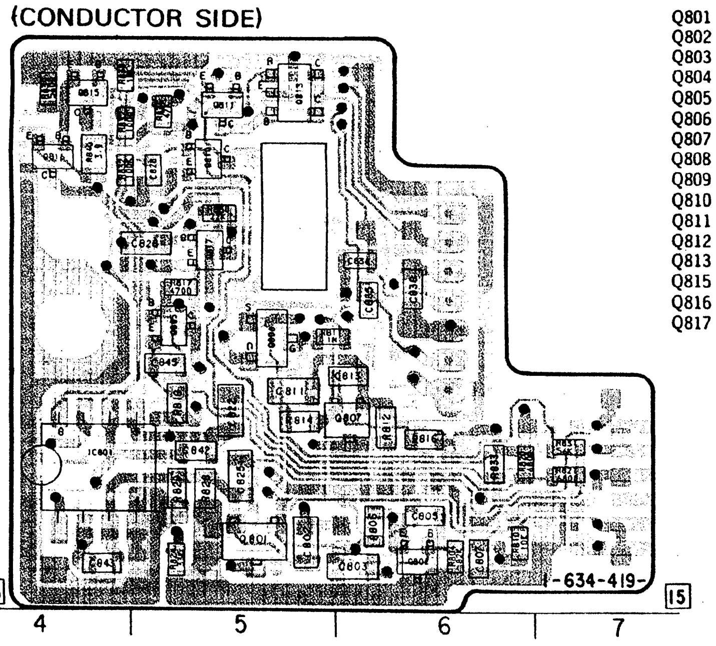
OARD
TOR SIDE)


J751
MIC PLUG IN POWER
J752
DC CUT
11

RD
SIDE)



MC-43 BOARD
(CONDUCTOR SIDE)


IC801
Q801
Q802
Q803
Q807
Q813
-634-419-
15
4
5
6
7

MC-43 BOARD, COMPLETE

IC

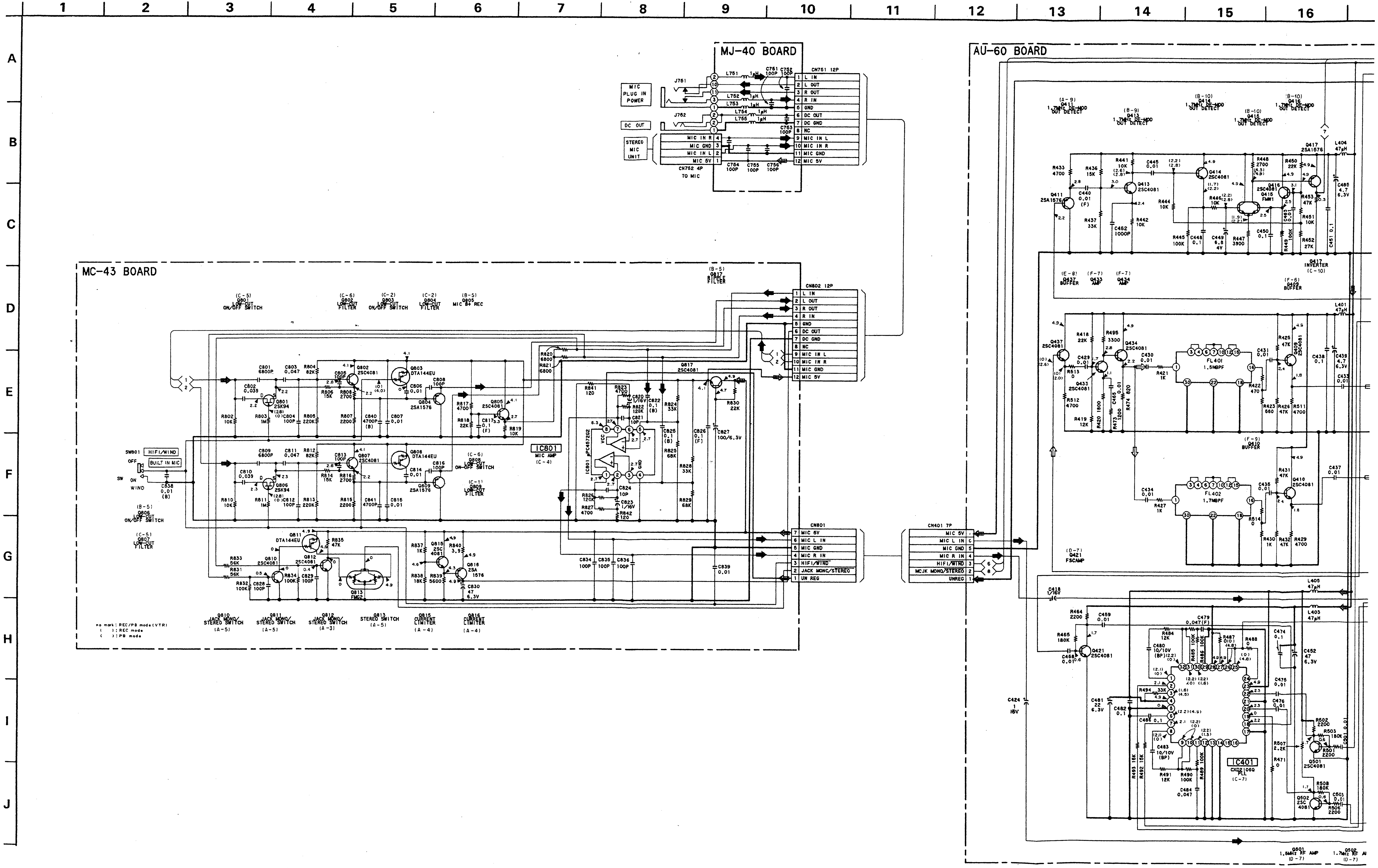
IC801	8-759-111-46	IC UPC4572G2

TRANSISTOR

Q801	8-729-109-44	TRANSISTOR 2SK94
Q802	8-729-905-35	TRANSISTOR 2SC4081-R
Q803	8-729-905-12	TRANSISTOR DTA144EU
Q804	8-729-905-23	TRANSISTOR 2SA1576-R
Q805	8-729-905-35	TRANSISTOR 2SC4081-R
Q806	8-729-109-44	TRANSISTOR 2SK94
Q807	8-729-905-35	TRANSISTOR 2SC4081-R
Q808	8-729-905-12	TRANSISTOR DTA144EU
Q809	8-729-905-23	TRANSISTOR 2SA1576-R
Q810	8-729-905-35	TRANSISTOR 2SC4081-R
Q811	8-729-905-12	TRANSISTOR DTA144EU
Q812	8-729-905-35	TRANSISTOR 2SC4081-R
Q813	8-729-904-07	TRANSISTOR FMG2
Q815	8-729-905-35	TRANSISTOR 2SC4081-R
Q816	8-729-905-23	TRANSISTOR 2SA1576-R
Q817	8-729-905-35	TRANSISTOR 2SC4081-R

AU-60 (ATF/AFM PROCESS), MC-43 (MIC AMP), MJ-41 (HEADPHONE/MIC PLUG IN POWER JACK) SCHEMATIC DIAGRAM

—Ref. No. AU-60, MC-43, MJ-41 BOARDS : 6000 series—


1
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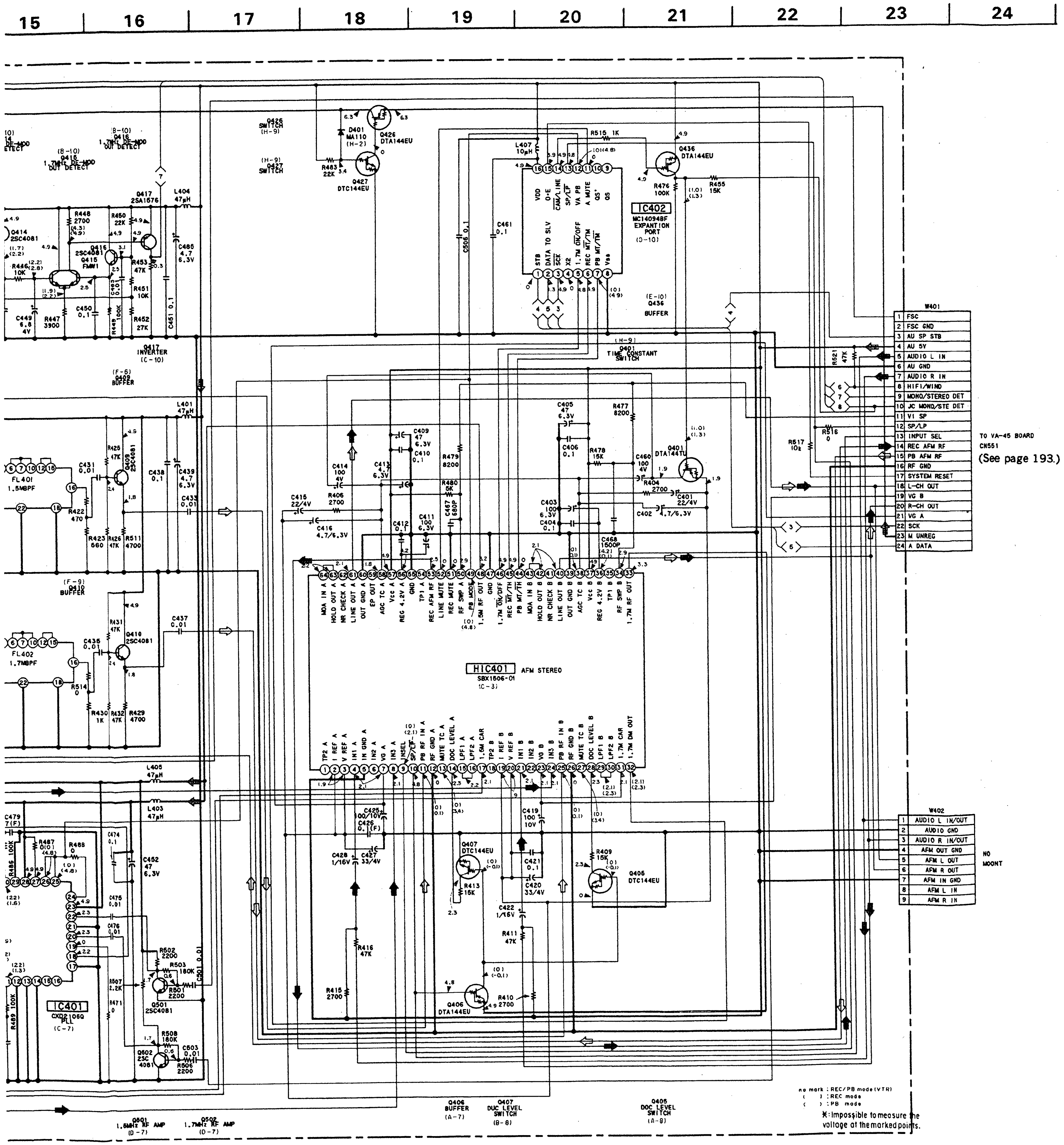
16
A
B
C
D
E
F
G
H
I
J
MJ-40 BOARD
MIC PLUG IN POWER
DC OUT
STEREO MIC UNIT
J751
J752
CN751 12P
CN752 4P
TO MIC
L IN
L OUT
R OUT
R IN
GND
DC OUT
DC GND
NC
MIC IN L
MIC IN R
MIC GND
MIC 5V
MC-43 BOARD
CN802 12P
CN801
MIC 5V
MIC L IN
MIC GND
MIC R IN
HIFI/WIND
JACK MONO/STEREO
UN REG
IC801
MIC AMP
SW801
HIFI/WIND
BUILT IN MIC
Q801 LOW-CUT ON/OFF SWITCH
Q802 LOW-CUT FILTER
Q803 LOW-CUT ON/OFF SWITCH
Q804 LOW-CUT FILTER
Q805 MIC B+ REC
Q806 LOW-CUT ON/OFF SWITCH
Q807 LOW-CUT FILTER
Q808 LOW-CUT ON/OFF SWITCH
Q809 LOW-CUT FILTER
Q810 JACK MONO/STEREO SWITCH
Q811 JACK MONO/STEREO SWITCH
Q812 JACK MONO/STEREO SWITCH
Q813 STEREO SWITCH
Q815 CURRENT LIMITER
Q816 CURRENT LIMITER
Q817 RIPPLE FILTER
no mark : REC/PB mode (VTR)
( ) : REC mode
( ) : PB mode
AU-60 BOARD
CN401 7P
MJCK MONO/STEREO
UNREG
Q411 1.7MHz DE-MOD OUT DETECT
Q413 1.7MHz DE-MOD OUT DETECT
Q414 1.7MHz DE-MOD OUT DETECT
Q415 1.7MHz DE-MOD OUT DETECT
Q416 1.7MHz DE-MOD OUT DETECT
Q417 INVERTER
Q437 BUFFER
Q433 AMP
Q434 AMP
Q409 BUFFER
Q410 BUFFER
Q421 FSCAMP
FL401 1.5MBPF
FL402 1.7MBPF
IC401 CXD2106Q PLL
Q501 1.5MHz RF AMP
Q502 1.7MHz RF AMP


15
16
17
18
19
20
21
22
23
24
IC402
MC14094BF
EXPANTION PORT
(D-10)
HIC401 AFM STEREO
SBX1506-01
(C-3)
IC401
CXD2106Q
(C-7)
Q426 SWITCH (H-9)
Q427 SWITCH (H-9)
Q426 DTA144EU
Q427 DTC144EU
D401 MA110 (H-2)
Q436 DTA144EU
Q436 BUFFER (E-10)
Q401 TIME CONSTANT SWITCH (H-9)
Q401 DTA144TU
Q417 INVERTER (C-10)
Q409 BUFFER (F-8)
Q410 BUFFER (F-9)
FL401 1.5MBPF
FL402 1.7MBPF
Q406 DTA144EU
Q407 DTC144EU
Q405 DTC144EU
Q501 2SC4081
Q502 2SC4081
W401
1 FSC
2 FSC GND
3 AU SP STB
4 AU 5V
5 AUDIO L IN
6 AU GND
7 AUDIO R IN
8 HIFI/WIND
9 MONO/STEREO DET
10 JC MONO/STE DET
11 VI SP
12 SP/LP
13 INPUT SEL
14 REC AFM RF
15 PB AFM RF
16 RF GND
17 SYSTEM RESET
18 L-CH OUT
19 VG B
20 R-CH OUT
21 VG A
22 SCK
23 M UNREG
24 A DATA
TO VA-45 BOARD
CN551
(See page 193.)
W402
1 AUDIO L IN/OUT
2 AUDIO GND
3 AUDIO R IN/OUT
4 AFM OUT GND
5 AFM L OUT
6 AFM R OUT
7 AFM IN GND
8 AFM L IN
9 AFM R IN
NO
MOONT
Q601 1.5MHz RF AMP (D-7)
Q502 1.7MHz RF AMP (D-7)
Q406 BUFFER (A-7)
Q407 DOC LEVEL SWITCH (B-8)
Q405 DOC LEVEL SWITCH (A-8)

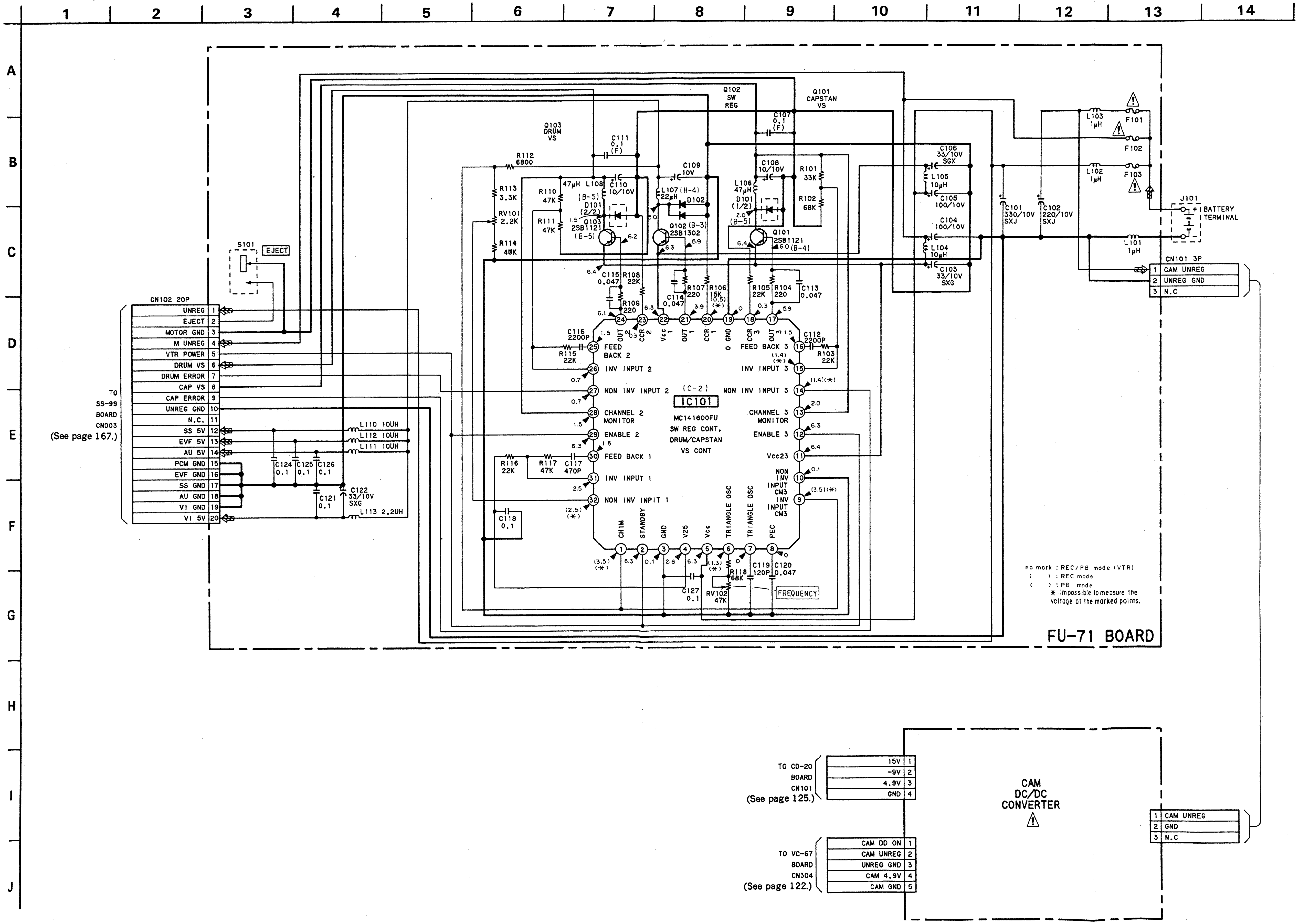
no mark : REC/PB mode (VTR)
( ) : REC mode
( ) : PB mode

✱ : Impossible to measure the voltage at the marked points.

- **Signal path**

	AUDIO Signal
REC	➡
PB	⇨

FU-71 (POWER) SCHEMATIC DIAGRAM
—Ref. No. FU-71 BOARD : 3000 series—



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A
B
C
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E
F
G
H
I
J
Q102 SW REG
Q101 CAPSTAN VS
Q103 DRUM VS
C107 0.1 (F)
C111 0.1 (F)
R112 6800
C109 10V
C108 10/10V
R101 33K
C106 33/10V SGX
L103 1μH
F101
F102
L102 1μH
F103
R113 3.3K
R110 47K
47μH L108 (B-5)
C110 10/10V
L107 (H-4) 22μH
D102
L106 47μH
D101 (1/2)
R102 68K
L105 10μH
C105 100/10V
C104 100/10V
C101 330/10V SXJ
C102 220/10V SXJ
J101
+ BATTERY TERMINAL
RV101 2.2K
R111 47K
D101 (2/2)
Q103 2SB1121 (B-5)
Q102 (B-3) 2SB1302
Q101 2SB1121 (B-4)
L104 10μH
C103 33/10V SXG
L101 1μH
CN101 3P
1 CAM UNREG
2 UNREG GND
3 N.C
R114 40K
S101
EJECT
C115 0.047
R108 22K
R109 220
C114 0.047
R107 220
R106 15K
R105 22K
R104 220
C113 0.047
CN102 20P
1 UNREG
2 EJECT
3 MOTOR GND
4 M UNREG
5 VTR POWER
6 DRUM VS
7 DRUM ERROR
8 CAP VS
9 CAP ERROR
10 UNREG GND
11 N.C.
12 SS 5V
13 EVF 5V
14 AU 5V
15 PCM GND
16 EVF GND
17 SS GND
18 AU GND
19 VI GND
20 VI 5V
TO SS-99 BOARD CN003 (See page 167.)
C116 2200P
R115 22K
C112 2200P
R103 22K
24 OUT 2
23 CCR 2
22 Vcc 1
21 OUT 1
20 CCR 1
19 O GND
18 CCR 3
17 OUT 3
25 FEED BACK 2
26 INV INPUT 2
27 NON INV INPUT 2
28 CHANNEL 2 MONITOR
29 ENABLE 2
30 FEED BACK 1
31 INV INPUT 1
32 NON INV INPIT 1
16 FEED BACK 3
15 INV INPUT 3
14 NON INV INPUT 3
13 CHANNEL 3 MONITOR
12 ENABLE 3
11 Vcc23
10 NON INV INPUT CM3
9 INV INPUT CM3
1 CHIM
2 STANDBY
3 GND
4 V25
5 Vcc
6 TRIANGLE OSC
7 TRIANGLE OSC
8 PEC
(C-2)
IC101
MC141600FU
SW REG CONT, DRUM/CAPSTAN VS CONT
L110 10UH
L112 10UH
L111 10UH
C124 0.1
C125 0.1
C126 0.1
C121 0.1
C122 33/10V SXG
L113 2.2UH
R116 22K
R117 47K
C117 470P
C118 0.1
C127 0.1
RV102 47K
R118 68K
C119 120P
C120 0.047
FREQUENCY
FU-71 BOARD
TO CD-20 BOARD CN101 (See page 125.)
15V 1
-9V 2
4.9V 3
GND 4
TO VC-67 BOARD CN304 (See page 122.)
CAM DD ON 1
CAM UNREG 2
UNREG GND 3
CAM 4.9V 4
CAM GND 5
CAM DC/DC CONVERTER
1 CAM UNREG
2 GND
3 N.C

no mark : REC/PB mode (VTR)
( ) : REC mode
< > : PB mode
*: impossible to measure the voltage at the marked points.

FU-71 BOARD, COMPLETE

DIODE

D101 8-719-981-59 DI
D102 8-719-981-56 DI

IC

IC101 8-759-035-98 IC

TRAN

Q101 8-729-805-25 TR
Q102 8-729-822-60 TR
Q103 8-729-805-25 TR

FU-71 (POWER) PRINTED WIRING BOARD

—Ref. No. FU-71 BOARD : 3000 series—

FU-71 BOARD, COMPLETE

DIODE

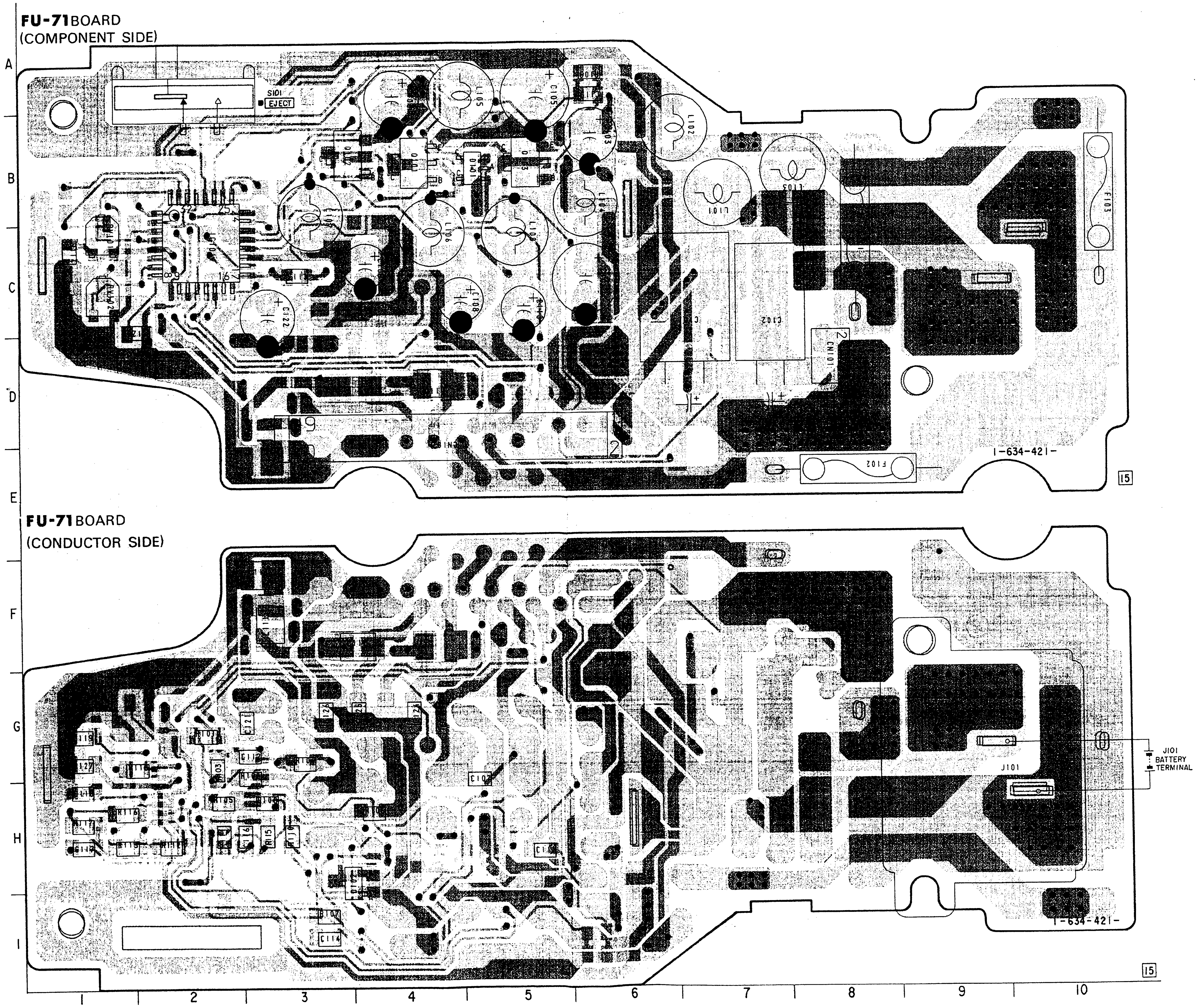
D101	8-719-981-59	DIODE FC805
D102	8-719-981-56	DIODE SB05W05CP

IC

IC101	8-759-035-98	IC MC141600FU

TRANSISTOR

Q101	8-729-805-25	TRANSISTOR 2SB1121
Q102	8-729-822-60	TRANSISTOR 2SB1302-ST
Q103	8-729-805-25	TRANSISTOR 2SB1121


FU-71 BOARD
(COMPONENT SIDE)
FU-71 BOARD
(CONDUCTOR SIDE)
S101 EJECT
L101
L102
L103
L104
L105
L106
L107
C102
C105
C122
CN101
F102
F103
J101
J101 BATTERY TERMINAL
1-634-421-
15
A
B
C
D
E
F
G
H
I
1
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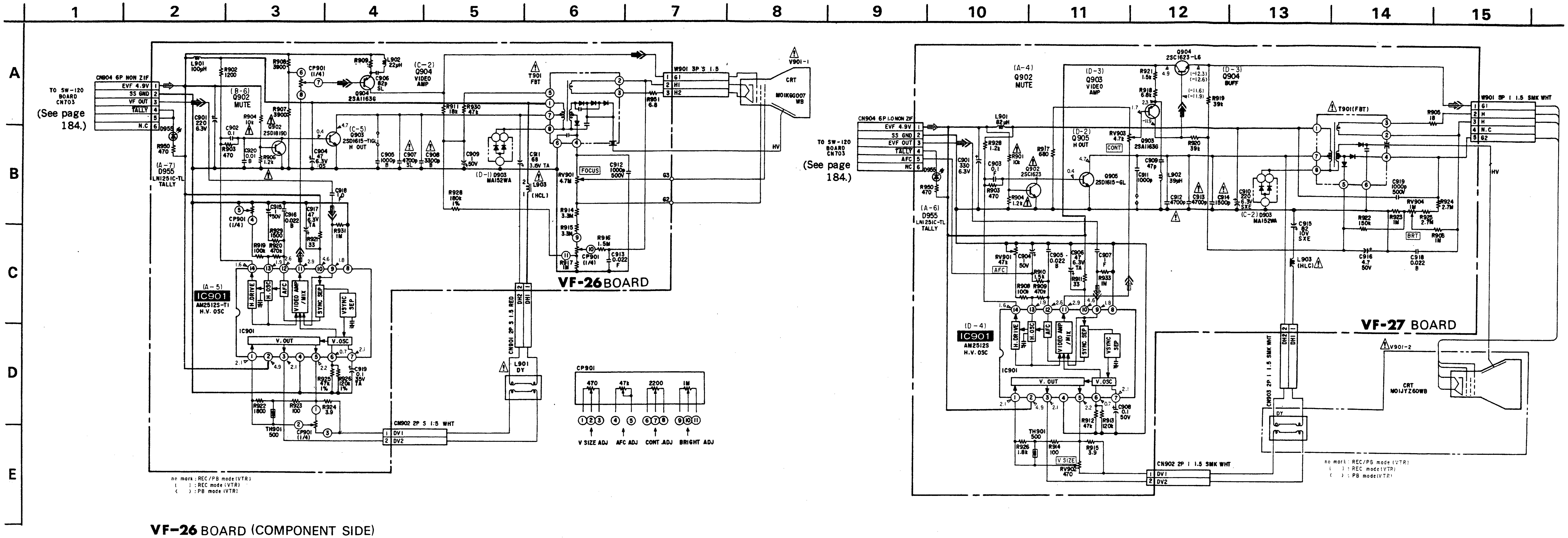
9
10

VF-26, VF-27 (VIEWFINDER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

—Ref. No. VF-26 BOARD: 8000 series, VF-27 BOARD: 9000 series


1
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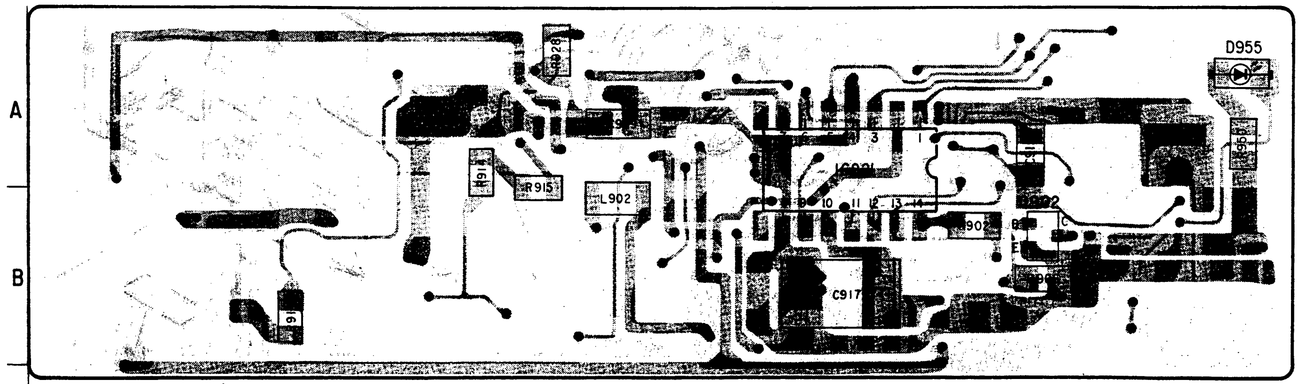
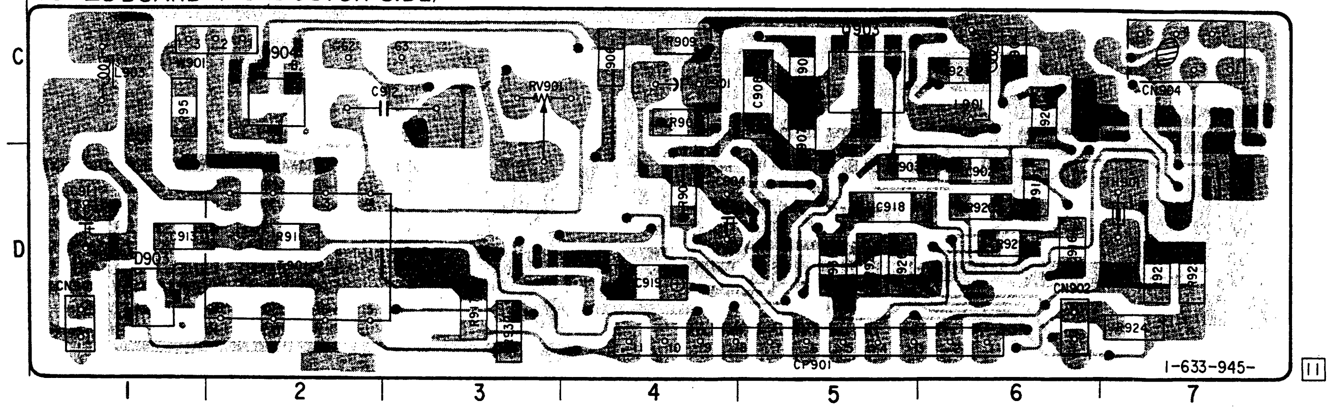
11
12
13
14
15
A
B
C
D
E
TO SW-120 BOARD CN703
(See page 184.)
CN904 6P NON ZIF
EVF 4.9V
SS GND
VF OUT
TALLY
N.C
AFC
NC
D955 LN1251C-TL TALLY
IC901 AM2512S-T1 H.V. OSC
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
Q902 MUTE
Q903 2SD1615-T(GL) H OUT
Q904 2SA1163G VIDEO AMP
Q905 2SD1615-GL
D903 MA152WA
T901 FBT
FOCUS
L901 DY
CN900 2P S 1.5 RED
CN902 2P S 1.5 WHT
W901 3P S 1.5
V901-1 CRT M01KGD007 WB
HV
CP901
V SIZE ADJ
AFC ADJ
CONT ADJ
BRIGHT ADJ
VF-26 BOARD
VF-27 BOARD
Q904 2SC1623-L6 BUFF
CN903 2P 1 1.5 SMK WHT
CN902 2P 1 1.5 SMK WHT
W901 5P 1 1.5 SMK WHT
V901-2 CRT M01JYZ60WB
TH901
BRT
CONT
V SIZE
no mark : REC/PB mode (VTR)
( ) : REC mode (VTR)
〈 〉 : PB mode (VTR)

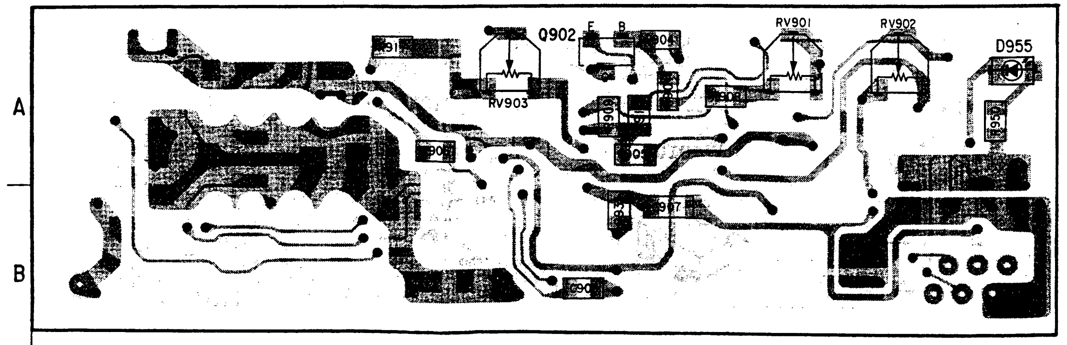
VF-26 BOARD (COMPONENT SIDE)


A
B
D955
L902
R915
C917

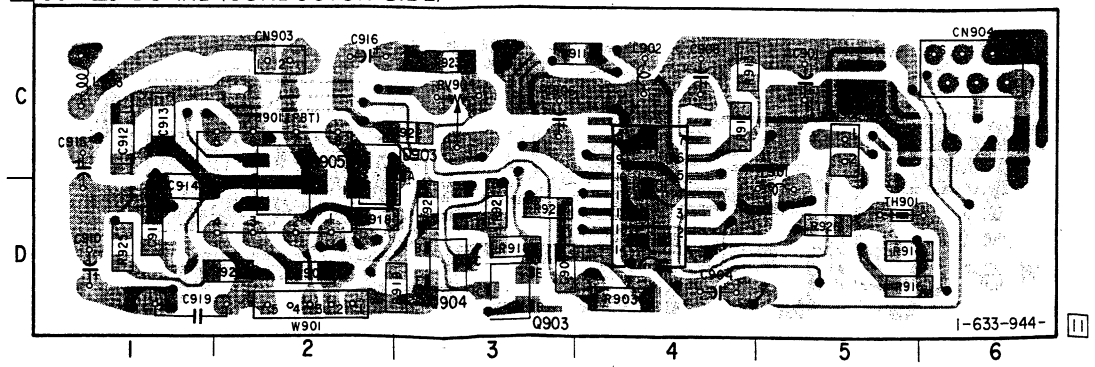
VF-26 BOARD (CONDUCTOR SIDE)


C
D
RV901
CN904
CN902
CP901
C918
1-633-945-
11
1
2
3
4
5
6
7

VF-27 BOARD (COMPONENT SIDE)


A
B
Q902
RV901
RV902
RV903
D955

VF-27 BOARD (CONDUCTOR SIDE)


C
D
CN903
C916
CN904
T901(FBT)
C919
W901
Q903
TH901
1-633-944-
11
1
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3
4
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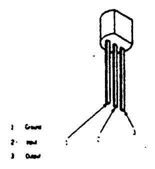
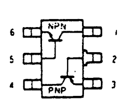
6

4-3. SEMICONDUCTORS

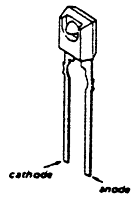
S-81250HG-RD



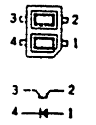
XN4601



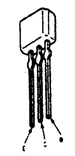
EE-TP109



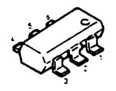
TLP907-0



2SA1175-HFE

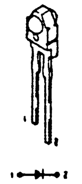


XN6213

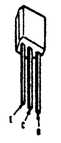


1 ; 1C, 2 ; 1B, 3 ; 2C,
4 ; 2B, 5 ; 2E, 6 ; 1E

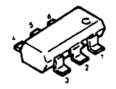
GL-452S



DTC144ES

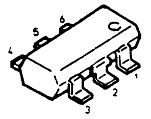


XN6215
XN6401
XN6501

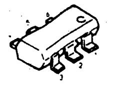


1 ; 1C, 2 ; 1B, 3 ; 2C,
4 ; 1E, 5 ; 2E, 6 ; 2B

IMN10T

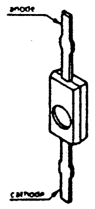


FC101

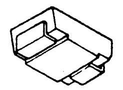


1 ; 1C, 2 ; 1B, 3 ; 2E,
4 ; 2C, 5 ; 2B, 6 ; 1E

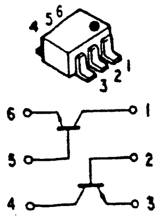
1T32



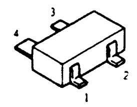
LN1251C



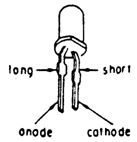
IMX1



DWA010



TLR124



SECTION 5
EXPLODED VIEWS

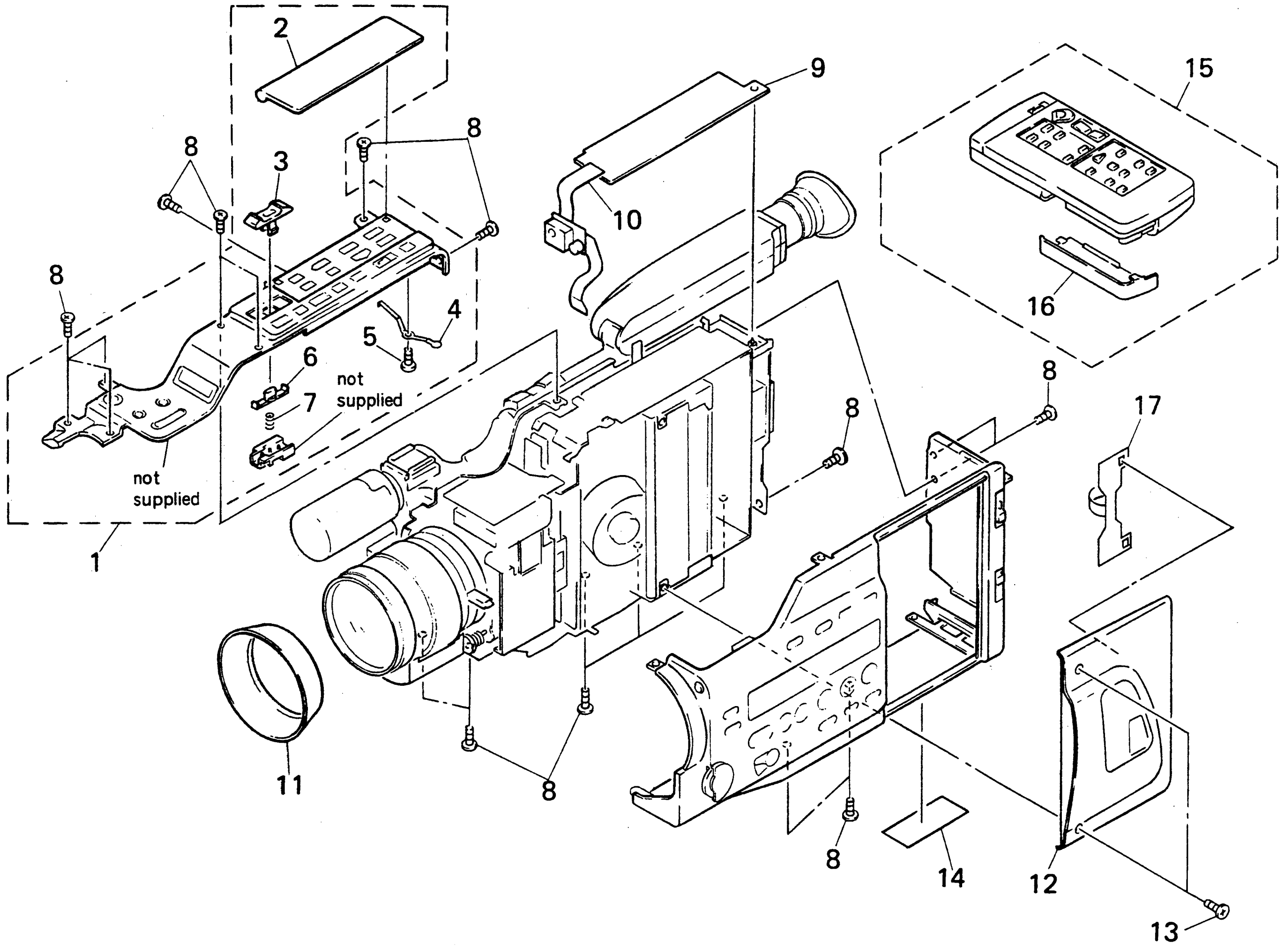
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

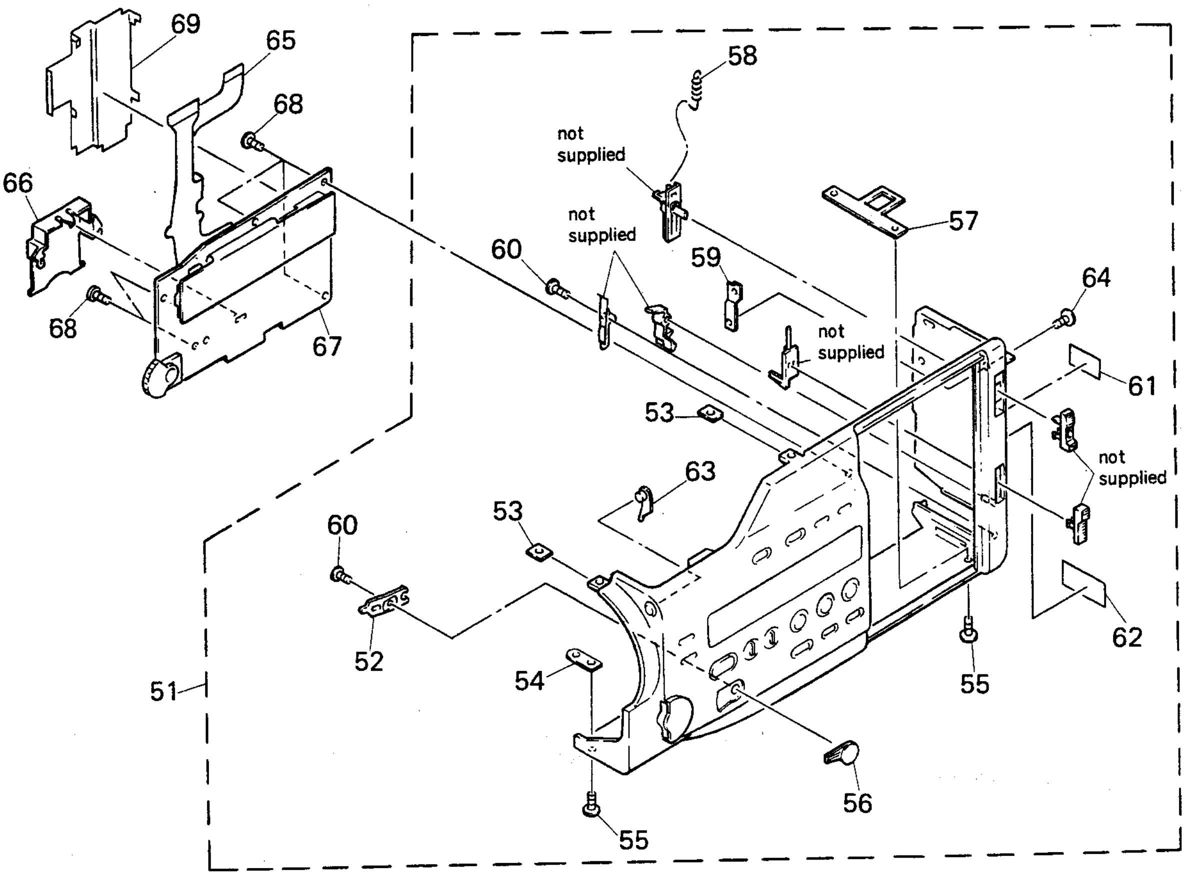
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

5-1. CABINET (UPPER) ASSEMBLY



Ref.No	Part No.	Description	Remark
1	X-3744-724-1	CABINET (UPPER) ASSY	2-7
2	3-744-750-01	LID, UPPER	
3	3-744-723-01	BUTTON (10), POWER	
4	3-744-732-01	SPRING, CLICK	
5	3-713-790-11	SCREW (M2X5), TAPPING, P3	
6	*3-718-257-11	BUTTON, PUSH, POWER	
7	3-303-973-00	SPRING, COMPRESSION	
8	3-719-381-01	SCREW (M2X4)	
9	*A-7071-081-A	FK-16 BOARD, COMPLETE	
10	1-634-434-11	FP-263 BOARD, FLEXIBLE	
11	3-739-844-01	HOOD, LENS	
12	X-3744-722-1	LID ASSY, CASSETTE (V101)	
12	X-3744-770-1	LID ASSY, CASSETTE (V700)	
13	3-733-912-11	SCREW (M2X4.5), SPECIAL HEAD	
14	*3-746-209-01	LABEL, MODEL NUMBER (U/C)	
15	1-465-505-11	COMMANDER, REMOTE	16
16	3-742-854-01	COVER, BATTERY	
17	3-746-253-02	RIBBON, LID RETAINER	

5-2. CABINET (RIGHT) ASSEMBLY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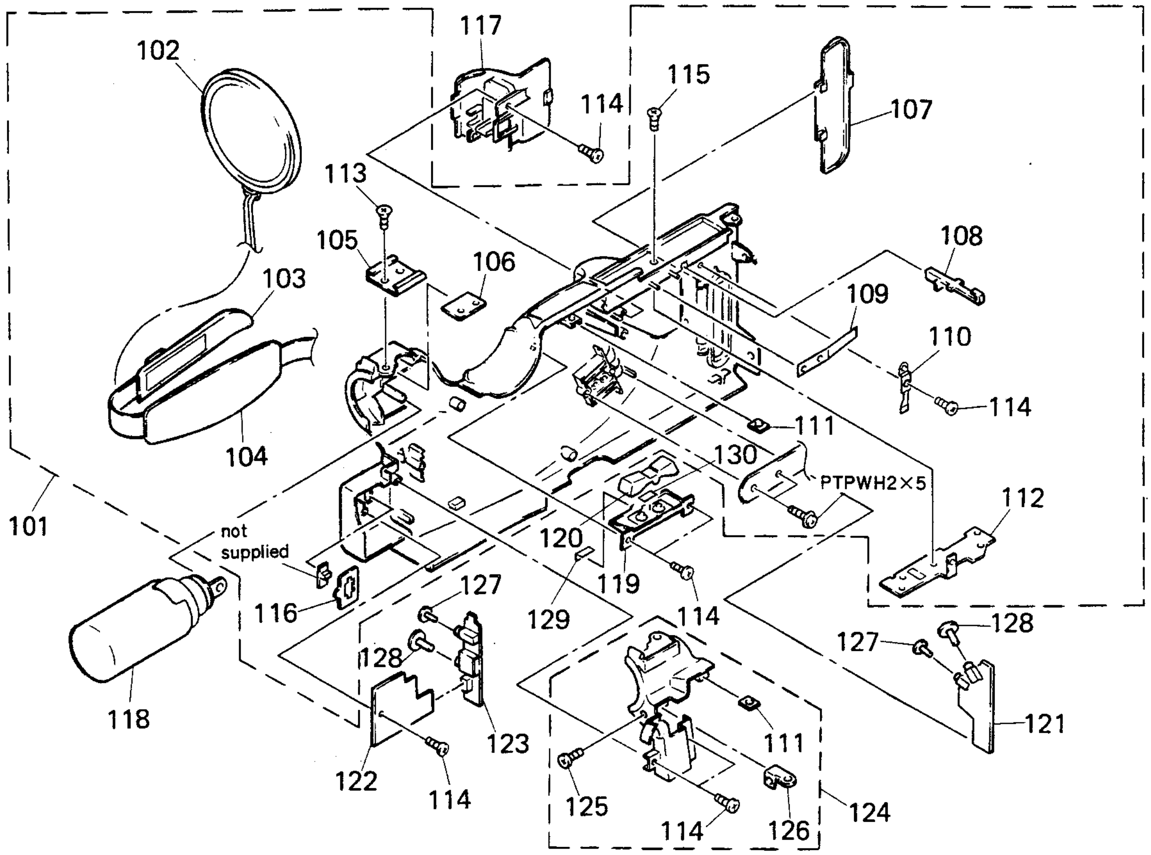
Ref.No	Part No.	Description	Remark
51	X-3744-726-1	CABINET (R) SUB ASSY	52-64
52	3-744-734-01	LEVER, AUTO	
53	3-718-233-01	NUT, PLATE	
54	3-727-915-01	NUT, PLATE	
55	3-719-381-01	SCREW (M2X4)	
56	3-744-733-01	KNOB, AUTO	
57	3-744-740-01	SHEET METAL (A), STRAP	
58	3-674-402-00	SPRING, TENSION	
59	3-744-741-01	SHEET METAL, R	
60	3-713-790-11	SCREW (M2X5), TAPPING, P3	
61	*3-719-683-01	LABEL, BATTERY FITTING	
62	*3-704-256-01	LABEL, CAUSION (US)	
63	3-727-922-01	PLATE, LIGHT GUIDE, REC	
64	3-744-720-11	SCREW (M2X3)	
65	1-634-433-11	FP-262 BOARD, FLEXIBLE	
66	X-3744-721-1	HOLDER ASSY	
67	*A-7062-170-A	FD-15 BOARD, COMPLETE	
68	3-713-790-11	SCREW (M2X5), TAPPING, P3	
69	*3-746-220-01	CASE, SHIELD, FD	

5-3. CABINET (GRIP) ASSEMBLY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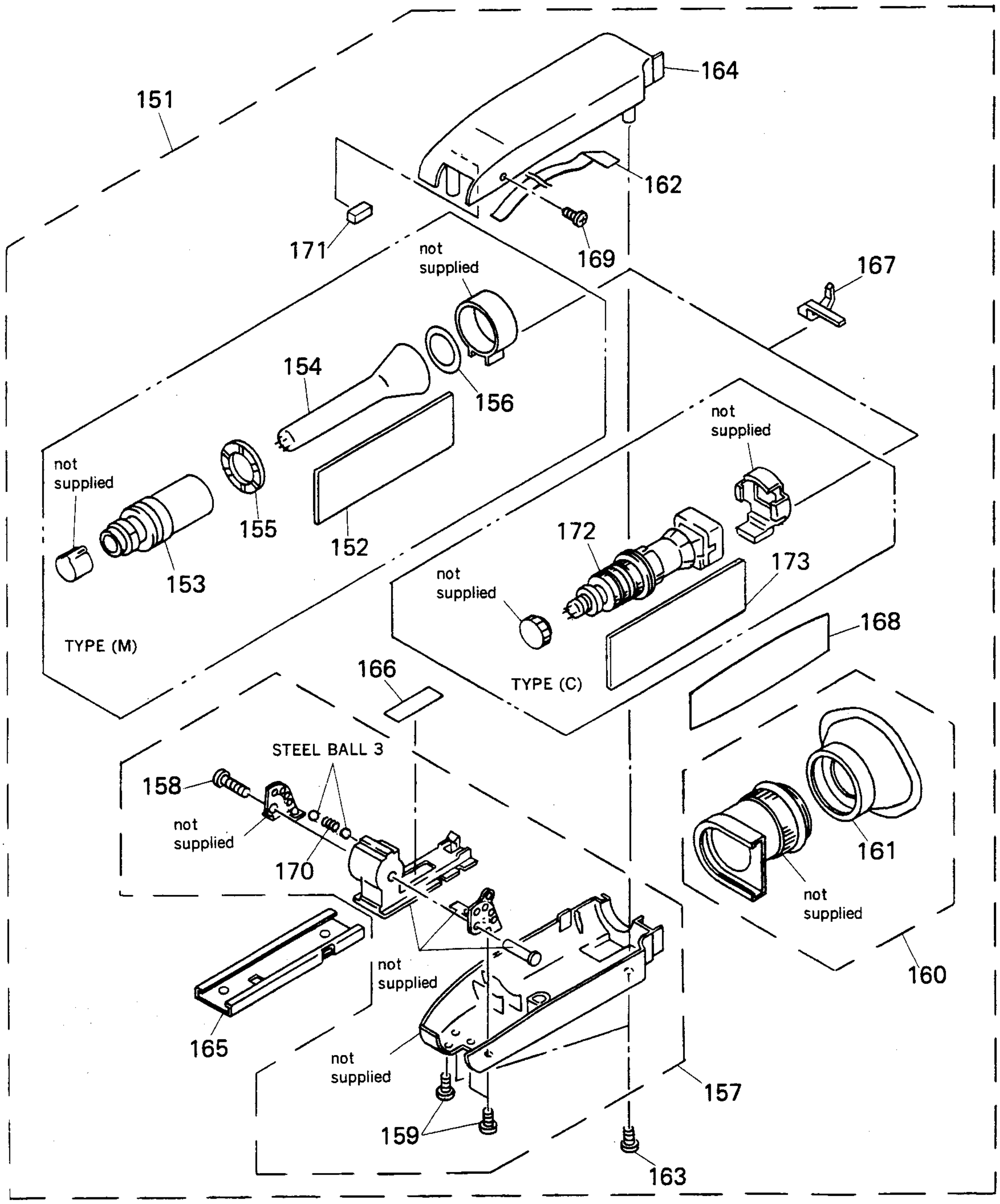
Ref.No	Part No.	Description	Remark
101	X-3744-725-1	CABINET (G) SUB ASSY	102-116
102	X-3744-708-1	CAP ASSY, HOOD	
103	3-739-866-81	BELT, GRIP	
104	3-724-591-01	PAD, GRIP	
105	3-724-511-01	SHOE, ACCESSORY	
106	3-744-739-01	NUT (10), LINING PLATE	
107	3-744-704-41	LID, CONNECTOR	
108	3-744-709-01	LOCK, SLIDE	
109	3-744-717-01	SPRING, LOCK	
110	3-746-203-01	SPRING, CN	
111	3-718-233-01	NUT, PLATE	
112	*3-744-754-01	BRACKET, VF	
113	3-742-871-11	SCREW (M2X4)	
114	3-713-790-21	SCREW (M2X6), TAPPING, P3	
115	3-742-871-21	SCREW (M2X3)	
116	3-744-735-01	RETAINER, M	
117	X-3744-723-1	BASE ASSY, SP	
118	1-542-143-11	MICROPHONE (STEREO TYPE)	
119	3-744-772-01	RETAINER, Z	
120	1-572-320-11	SWITCH, PUSH	
121	*1-634-422-11	SW-120 BOARD	
122	*A-7062-089-A	MC-43 BOARD, COMPLETE	
123	*A-7071-083-A	MJ-40 BOARD, COMPLETE	
124	X-3744-716-1	CABINET ASSY, MICROPHONE	111, 114, 125, 126
125	3-719-381-01	SCREW (M2X4)	
126	3-744-744-01	NUT, M PLATE	
127	3-728-266-01	COVER, 2.5 JACK	
128	3-728-267-01	COVER, 3.5 JACK	
129	*3-746-251-01	SHEET, Z	
130	*3-746-252-01	SEAL, Z	

5-4. EVF ASSEMBLY (EVF (M), EVF (C))


151
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167
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156
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155
152
153
TYPE (M)
172
173
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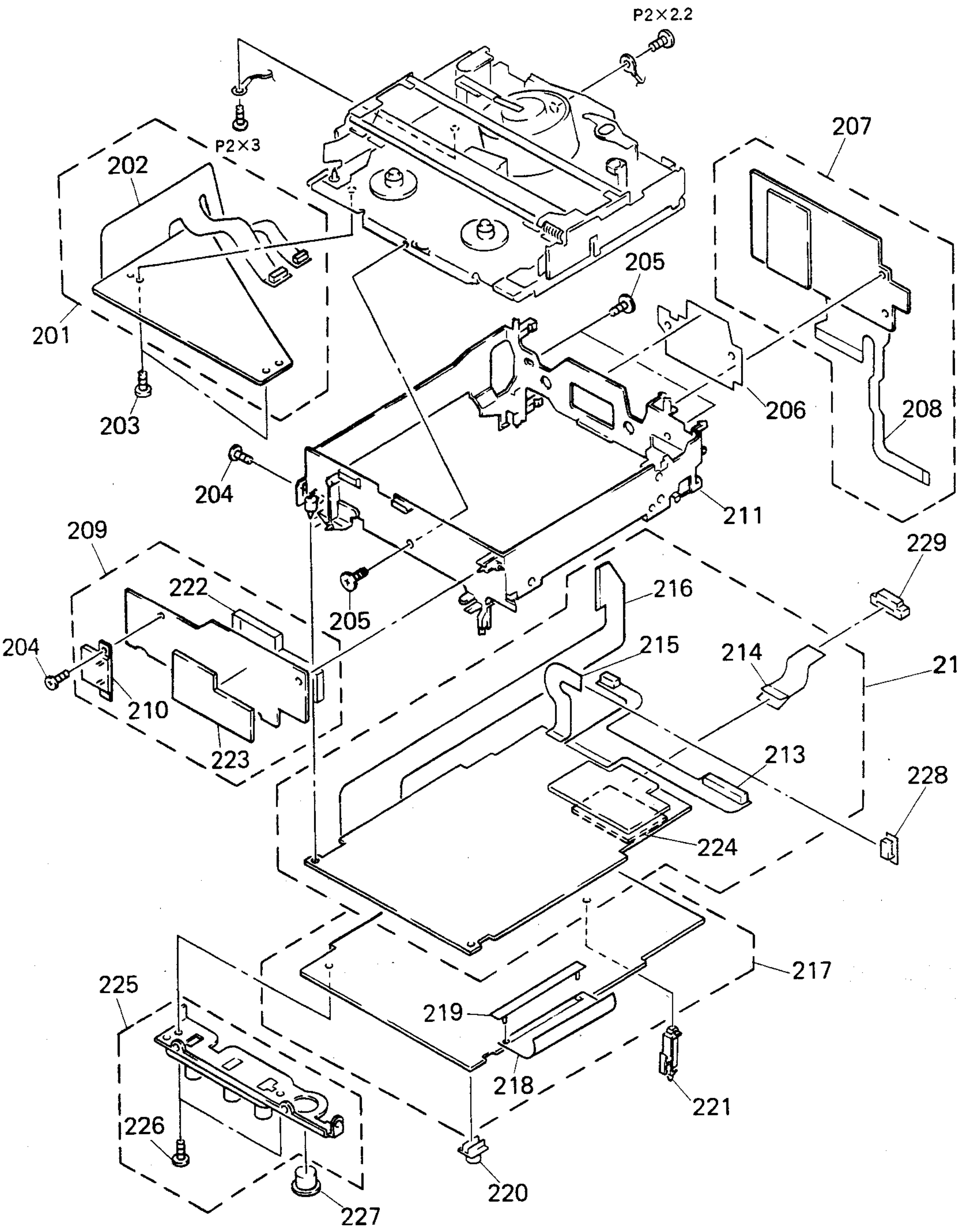
168
TYPE (C)
166
STEEL BALL 3
158
not supplied
170
161
not supplied
160
165
not supplied
not supplied
157
159
163

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description	Remark
151	A-7019-216-A	EVF (M) ASSY	152-171
151	A-7019-218-A	EVF (C) ASSY	157-173
152	* A-7062-124-A	VF-26 BOARD, COMPLETE	
153	⚠.1-451-310-21	DEFLECTION YOKE (B/W)	
154	⚠.1-546-085-11	CATHODE-RAY TUBE, B/W	
155	3-724-549-01	LOCK, CRT	
156	3-724-570-01	RING, CRT FIXED	
157	X-3744-701-1	CASE ASSY, LOWER, VF	158, 159, 170
158	3-732-012-11	SCREW (M2X5)	
159	3-744-720-11	SCREW (M2X3)	
160	X-3744-703-1	EYE BLOCK ASSY	161
161	3-733-922-01	EYE CUP	
162	1-634-011-11	FP-264 BOARD, FLEXIBLE	
163	3-713-790-31	SCREW (M2X8), TAPPING, P3	
164	3-744-705-01	CASE, VF (UPPER)	
165	3-744-712-01	SHOE, VF	
166	3-744-716-01	COVER, FL	
167	3-744-722-01	GUIDE, VF TALLY	
168	3-744-775-01	INSULATOR, VF	
169	3-719-381-01	SCREW (M2X4)	
170	3-302-492-00	SPRING, COMPRESSION	
171	9-911-844-XX	CUSHION, CRT	
172	⚠.1-452-482-11	CRT ASSY (M91JYZ60WB)	
173	* A-7062-125-A	VF-27 BOARD, COMPLETE	

5-5. MAIN BOARDS ASSEMBLIES


P2×2.2
P2×3
202
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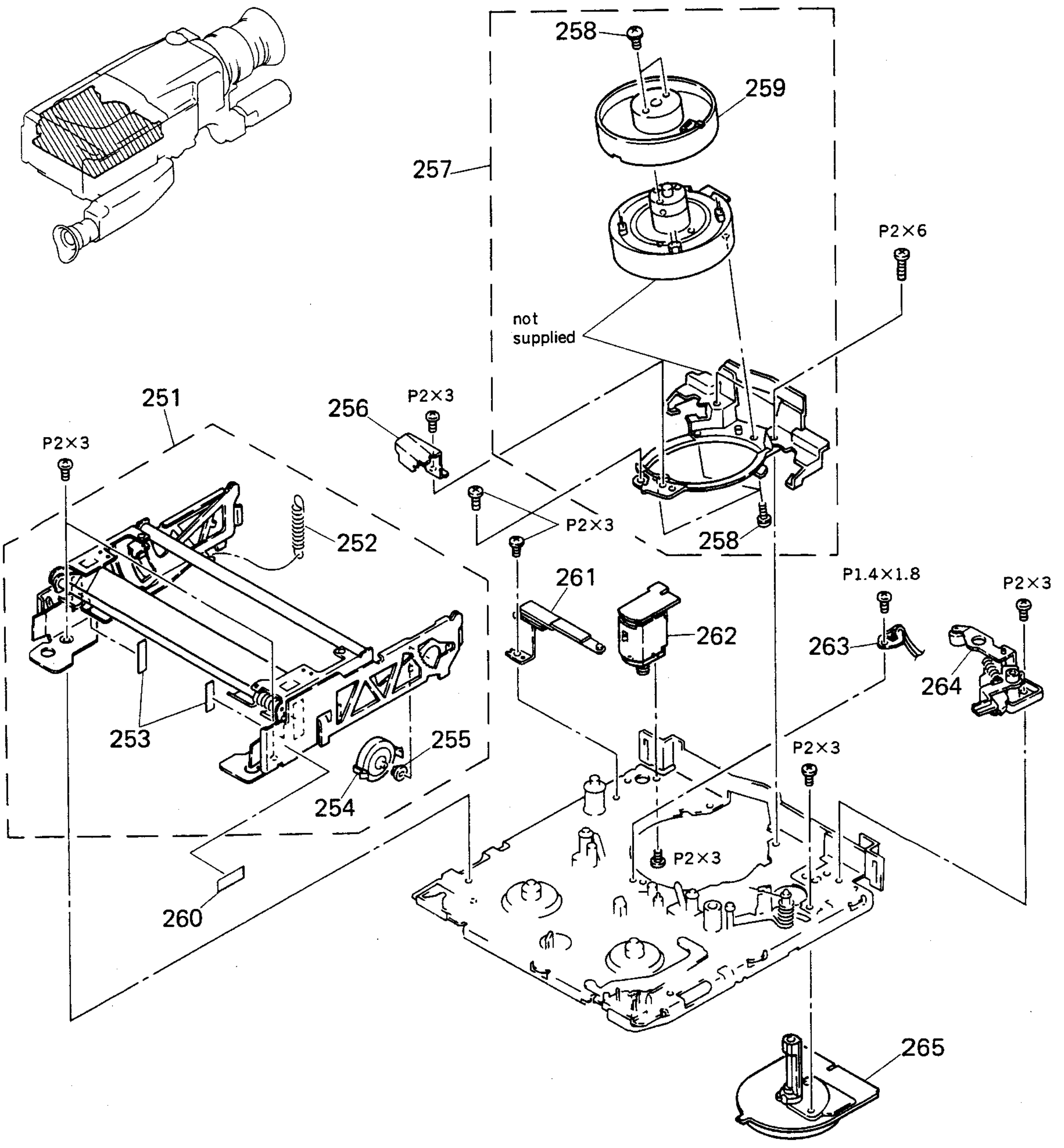
Ref.No	Part No.	Description	Remark
201	* A-7062-080-A	CC-33 BOARD, COMPLETE	202
202	1-634-429-11	FP-258 BOARD, FLEXIBLE	
203	3-713-790-11	SCREW (M2X5), TAPPING, P3	
204	3-719-381-01	SCREW (M2X4)	
205	3-732-791-01	SCREW (M2X3)	
206	* 3-746-201-01	PLATE, SHIELD, AM	
207	* A-7062-084-A	AU-60 BOARD, COMPLETE	208
208	1-634-432-11	FP-261 BOARD, FLEXIBLE	
209	* A-7062-081-A	FU-71 BOARD, COMPLETE	210, 222, 223
210	1-537-241-11	TERMINAL BOARD	
211	3-744-779-01	FRAME, MD	
212	* A-7062-169-A	SS-99 BOARD, COMPLETE	213-216, 224
213	1-634-428-11	FP-257 BOARD, FLEXIBLE	
214	1-634-427-11	FP-256 BOARD, FLEXIBLE	
215	1-634-426-11	FP-255 BOARD, FLEXIBLE	
216	1-634-430-11	FP-259 BOARD, FLEXIBLE	
217	* A-7062-083-A	VA-45 BOARD, COMPLETE	218, 219
218	1-634-431-11	FP-260 BOARD, FLEXIBLE	
219	X-3744-720-1	HOLDER ASSY, FP	
220	3-744-743-01	KNOB, IO SELECTION	
221	3-744-757-01	SUPPORT (10), C	
222	* X-3744-706-1	CASE ASSY, SHIELD, FU	
223	* X-3744-707-1	LID ASSY, REAR, FU SHIELD	
224	A-7068-167-A	HR-10 BOARD, COMPLETE	
225	A-7091-210-A	PLATE ASSY, JACK	226
226	3-744-720-11	SCREW (M2X3)	
227	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
228	1-569-346-11	CONNECTOR, FPC(TRANSLATION)10P	
229	1-569-347-11	CONNECTOR, FPC(TRANSLATION)13P	

5-6. MECHANICAL ASSEMBLY (1)



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P2×6
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256
P2×3
P2×3
252
P2×3
258
261
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P1.4×1.8
263
P2×3
264
253
255
P2×3
254
P2×3
260
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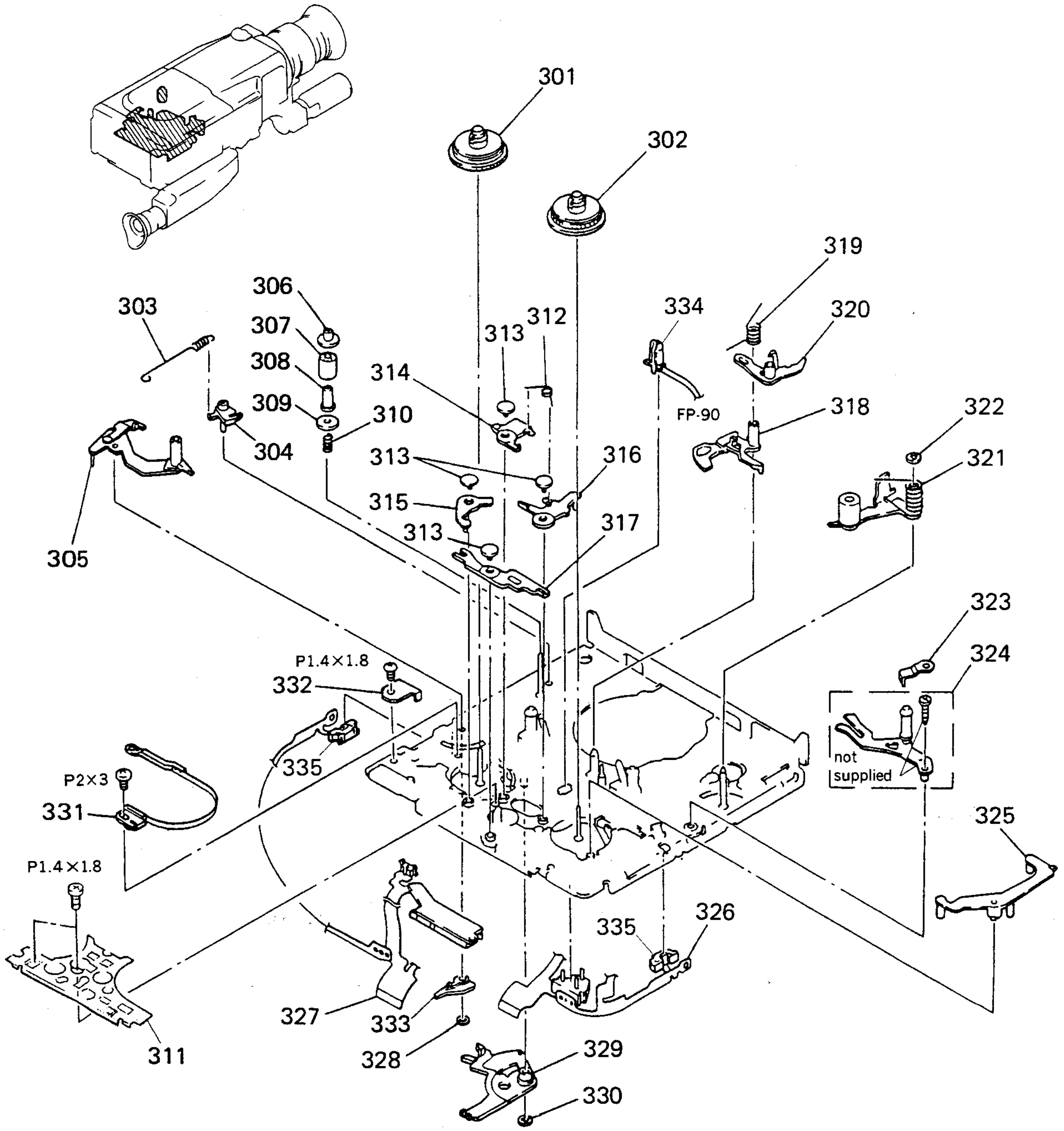
Ref.No	Part No.	Description	Remark
251	X-3728-873-1	CASSETTE COMPARTMENT ASSY	252-255
252	3-728-825-03	SPRING, TENSION	
253	* 3-728-829-01	TAPE	
254	3-728-867-02	DAMPER, OIL	
255	3-728-828-02	GEAR, DAMPER	
256	3-728-868-01	GUARD, GUIDE	
257	A-7048-355-A	DRUM ASSY (DGU-55A-R)	258, 259
258	3-686-493-01	SCREW +P (M2X5)	
259	A-7049-305-A	DRUM ASSY, ROTARY (UPPER) (DGR-55A-R)	
260	*3-730-176-01	SHEET, MD	
261	X-3728-864-1	GROUND ASSY, SHAFT	
262	A-7040-208-A	MOTOR ASSY, THREADING (LOADING) (M903)	
263	1-808-505-12	SENSOR (DEW)	
264	A-7040-207-A	ROLLER BLOCK ASSY, HC	
265	8-835-331-01	MOTOR, DC U-22A (CAPSTAN) (M902)	

5-7. MECHANICAL ASSEMBLY (2)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FP-90
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P1.4×1.8
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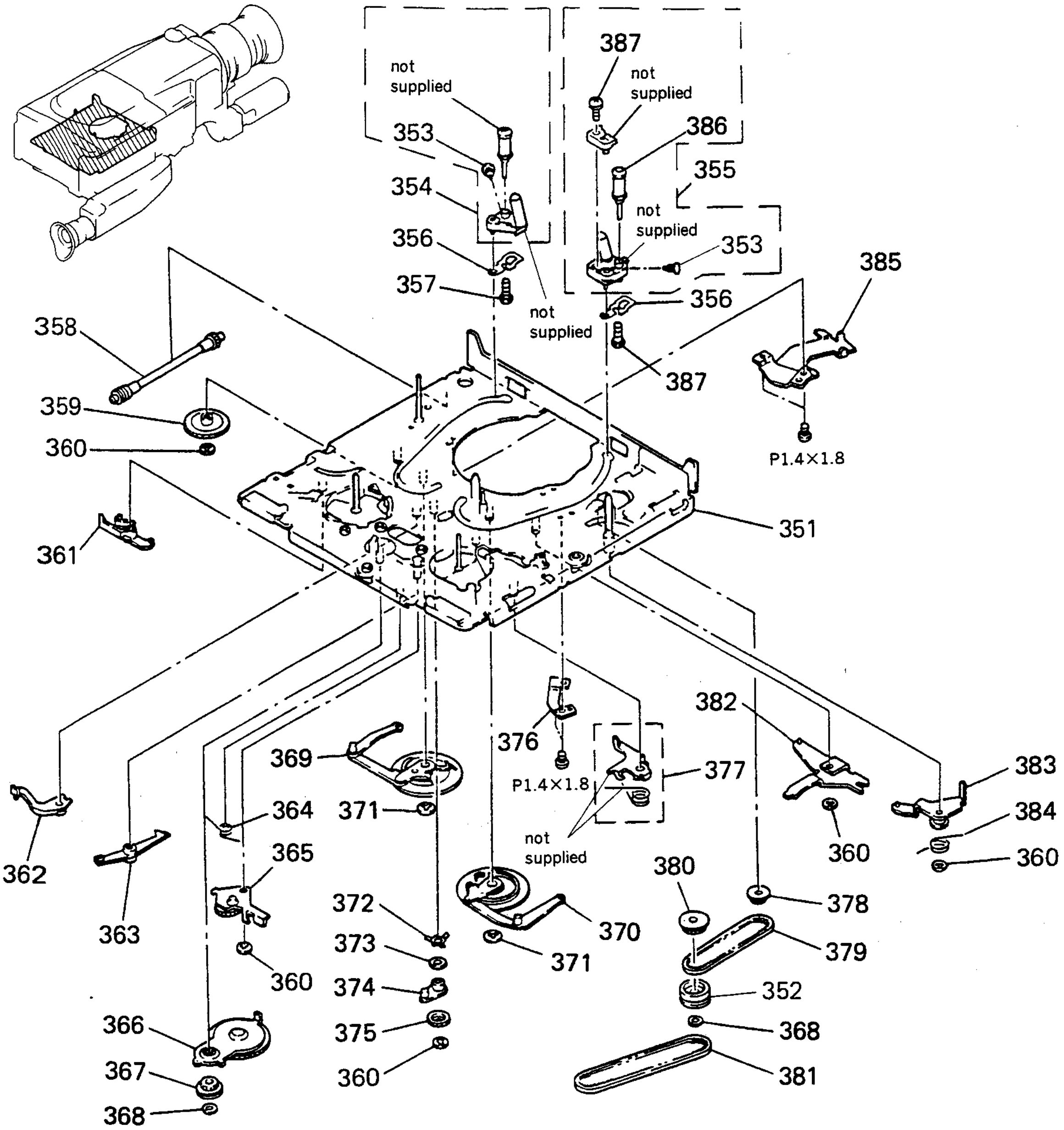
Ref.No	Part No.	Description	Remark
301	X-3728-851-1	TABLE ASSY, REEL, S	
302	X-3728-855-1	TABLE ASSY, REEL, T	
303	3-736-414-01	SPRING, TENSION	
304	3-728-855-03	ARM, ADJUSTMENT	
305	X-3728-867-1	ARM ASSY (S),TENSION REGULATOR	
306	3-726-884-01	FLANGE, UPPER, TG2	
307	3-726-883-01	ROLLER, TG2	
308	3-726-885-01	SLEEVE, TG2	
309	3-726-882-02	FLANGE, LOWER, TG2	
310	3-726-886-01	SPRING, COMPRESSION	
311	3-741-195-01	PLATE, BLIND, RK	
312	3-726-866-01	SPRING (ST), TORSION	
313	3-726-858-01	PIN, SHAFT RETAINER	
314	3-728-849-01	BRAKE, S	
315	3-726-852-01	BRAKE, LB	
316	3-728-850-01	BRAKE, T	
317	3-726-853-01	LEVER, LB	
318	3-728-875-01	STOPPER, RK	
319	3-726-864-01	SPRING (RK), TORSION	
320	3-728-852-02	ARM, RK STOPPER	
321	A-7040-219-A	ARM BLOCK ASSY, PINCH	
322	3-669-465-00	WASHER (1.5), STOPPER	
323	3-728-808-01	SPRING, LEAF	
324	X-3728-869-1	ARM ASSY, TG7	
325	3-728-848-01	ARM, LB RELEASE	
326	1-628-061-12	FP-90 BOARD, FLEXIBLE	
327	1-628-060-12	FP-89 BOARD, FLEXIBLE	
328	3-321-393-11	WASHER, STOPPER	
329	X-3728-863-1	LEVER ASSY, SW	
331	X-3726-809-2	BAND ASSY, TENSION REGULATOR	
332	3-730-125-01	RETAINER, SW	
333	X-3728-857-1	STOPPER ASSY,TENSION REGULATOR	
334	3-728-837-01	HOLDER, LED	
335	3-728-869-02	HOLDER, SENSOR	

5-8. MECHANICAL ASSEMBLY (3)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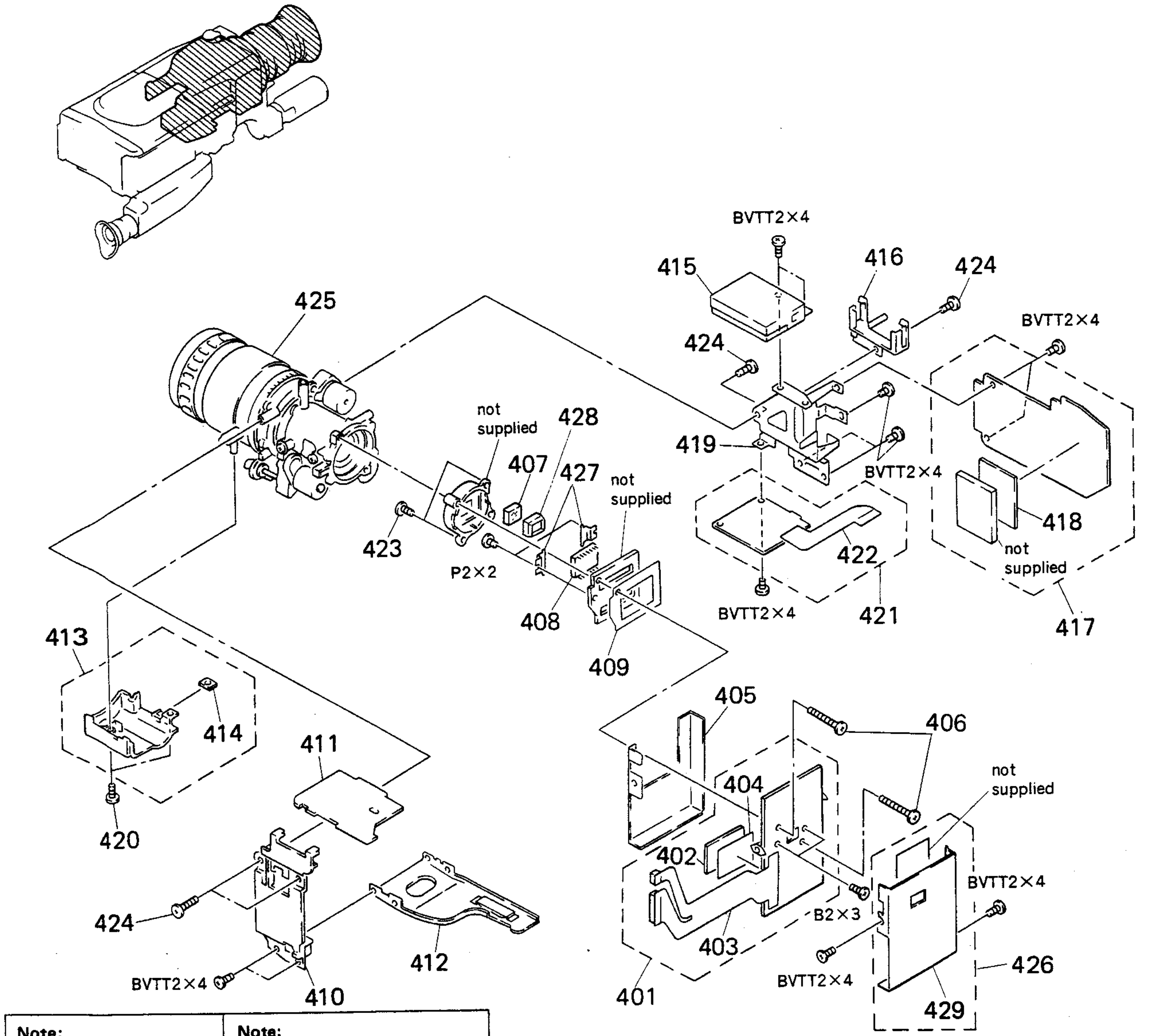
Ref.No	Part No.	Description	Remark
351	X-3728-862-1	CHASSIS ASSY, MECHANICAL	
353	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
352	3-741-196-01	PULLEY (LOWER), BELT MIDWAY	
354	A-7040-204-A	COASTER (LEFT) BLOCK ASSY	353
355	A-7040-215-A	COASTER (RIGHT)BLOCK ASSY(N1S)	353, 386, 387
356	3-736-485-01	SPRING, LEAF, COSTER	
357	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
358	X-3728-868-1	WORM ASSY	
359	3-744-109-01	GEAR, WHEEL	
360	3-726-829-01	WASHER, STOPPER	
361	3-728-842-01	LEVER, EJECT	
362	3-728-851-01	BRAKE, UL	
363	3-726-854-01	ARM, BRAKE RELEASE	
364	3-726-865-01	SPRING (LB), TORSION	
365	A-7040-225-A	GEAR BLOCK ASSY (N), LB	
366	X-3728-866-1	GEAR ASSY, RK	
367	X-3728-858-1	GEAR ASSY, RC	
368	3-321-393-11	WASHER, STOPPER	

Ref.No	Part No.	Description	Remark
369	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	
370	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
372	3-669-465-00	WASHER (1.5), STOPPER	
372	3-726-867-01	SPRING, LEAF	
373	3-701-436-21	WASHER, POLYEHTHYLENE	
374	3-726-857-02	ARM, UL	
375	3-726-856-02	GEAR, UL	
376	*3-726-805-01	REINFORCEMENT (TT)	
377	X-3726-808-2	BRAKE ASSY, TS	
378	X-3726-805-1	GEAR ASSY, JOINT	
379	3-728-866-11	BELT (S), TIMING	
380	X-372-683-81	PULLEY (UPPER) ASSY, MIDWAY	
381	3-741-197-01	BELT (L), TIMING	
382	X-3726-804-1	LEVER ASSY, THREADING	
383	X-3726-824-1	ARM ASSY, PINCH SUB	
384	3-726-895-01	SPRING	
385	X-3726-841-1	REINFORCEMENT (SS) ASSY	
386	X-3728-808-1	ROLLER ASSY (U) (SUS), GUIDE	
387	3-736-473-01	SCREW (M2X0.25) (THREE LOCK)	

5-9. CARERA BLOCK ASSEMBLY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not supplied
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417
408
409
413
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406
414
411
404
not supplied
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402
BVTT2×4
424
B2×3
403
426
412
BVTT2×4
410
401
BVTT2×4
429

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

※ For replacement of CCD imager, CD-20 board, complete and DT-77 board, complete read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 121.

Ref.No	Part No.	Description	Remark
401	* A-7062-085-A	CD-20 BOARD, COMPLETE	402-404
402	A-7068-173-A	DT-77F BOARD, COMPLETE (HIC)	
403	1-634-435-11	FP-265 BOARD, FLEXIBLE	
404	* X-3739-811-1	PLATE ASSY, SHIELD, CD	
405	* X-3744-702-1	CASE (MAIN) ASSY, SHIELD, C	
406	3-335-640-51	SCREW (M2X16)	
407	1-547-381-12	FILTER BLOCK, OPTICAL	
409	* 3-725-180-01	SHEET, INSULATING, CCD HOLDER	
410	* 3-744-771-01	FRAME (A), C	
411	* A-7071-084-A	FC-28 BOARD, COMPLETE	
412	X-3744-718-1	TRIPOD ASSY	
413	X-3744-705-2	COVER ASSY, GEAR	414
414	3-718-233-01	NUT, PLATE	
415	⚠ 1-466-230-21	CONVERTER UNIT, D/D	

Ref.No	Part No.	Description	Remark
416	* 3-744-765-01	FRAME (C), C	
417	* A-7062-296-A	VC-67 BOARD, COMPLETE	418
418	A-7068-163-A	MX-12A BOARD, COMPLETE	
419	X-3744-713-1	FRAME (B) ASSY, C	
420	3-746-217-01	SCREW, TAPPING(B),SPECIAL HEAD	
421	* A-7062-087-A	AF-54 BOARD, COMPLETE	422
422	1-634-436-11	FP-266 BOARD, FLEXIBLE	
423	3-738-519-01	SCREW (M2X3), +B	
424	3-727-903-11	SCREW (2X5), TAPPING, +B	
425	1-547-413-11	LENS, ZOOM (VCL-8508XG)	
426	* X-3744-763-1	LID ASSY, C SHIELD CASE	429
427	* 3-725-175-01	STOPPER, CCD	
428	* 3-725-177-01	RUBBER, SEAL	
429	* 3-744-702-01	LID, C SHIELD CASE	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark		
	*A-7062-169-A	SS-99 BOARD, COMPLETE *****************	(Ref. No. 2000 series)		
	A-7068-167-A	HR-10 BOARD, COMPLETE			
	1-634-426-11	FP-255 FLEXIBLE BOARD			
	1-634-427-11	FP-256 FLEXIBLE BOARD			
	*3-744-788-01	CASE, SHIELD, RP			
	*3-744-789-01	LID, FRONT, RP SHIELD			
	*3-744-790-01	LID, REAR, RP SHIELD			
		CAPACITOR			
C001	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C002	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C003	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C004	1-126-602-11	ELECT CHIP	3.3MF	20%	50V
C005	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C006	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C010	1-124-242-00	ELECT	33MF	20%	25V
C011	1-126-094-11	ELECT	4.7MF	20%	35V
C012	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C013	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C014	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C015	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C016	1-162-969-11	CERAMIC CHIP	0.0068MF	10%	25V
C018	1-136-718-11	CERAMIC CHIP	0.1MF	5%	25V
C019	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C020	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C021	1-162-967-11	CERAMIC CHIP	0.0033MF	10%	50V
C022	1-162-967-11	CERAMIC CHIP	0.0033MF	10%	50V
C023	1-162-967-11	CERAMIC CHIP	0.0033MF	10%	50V
C025	1-128-006-11	ELECT CHIP	4.7MF	20%	25V
C026	1-164-330-21	CERAMIC CHIP	0.22MF	10%	16V
C027	1-164-330-21	CERAMIC CHIP	0.22MF	10%	16V
C028	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C030	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C031	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C032	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C033	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C034	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C035	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C036	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C037	1-162-638-11	CERAMIC CHIP	1MF		16V
C038	1-135-159-21	TANTAL. CHIP	10MF	20%	16V
C039	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C040	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C041	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C044	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C045	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C046	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C048	1-128-004-11	ELECT CHIP	10MF	20%	16V
C101	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C103	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C105	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C106	1-124-779-00	ELECT CHIP	10MF	20%	16V
C110	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C111	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C112	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C113	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C114	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C115	1-162-997-11	CERAMIC CHIP	10PF	0.5PF	50V
C116	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C118	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C119	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C120	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C121	1-164-299-11	CERAMIC CHIP	0.22MF	10%	25V
C122	1-124-257-00	ELECT	2.2MF	20%	35V
C123	1-124-257-00	ELECT	2.2MF	20%	35V
C124	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C125	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C150	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C151	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C152	1-128-004-11	ELECT CHIP	10MF	20%	16V
C153	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C154	1-128-006-11	ELECT CHIP	4.7MF	20%	25V
C155	1-164-634-11	CERAMIC CHIP	1MF		16V
C156	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C157	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C158	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C159	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C160	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C161	1-162-968-11	CERAMIC CHIP	0.0047MF	10%	50V
C162	1-162-967-11	CERAMIC CHIP	0.0033MF	10%	50V
C163	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C165	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C166	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C167	1-162-638-11	CERAMIC CHIP	1MF		16V
C168	1-162-638-11	CERAMIC CHIP	1MF		16V
C169	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C170	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C171	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C172	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C173	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C175	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C176	1-162-965-11	CERAMIC CHIP	0.0015MF	10%	50V
C177	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C178	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C179	1-135-180-21	TANTAL. CHIP	3.3MF	20%	6.3V
C180	1-164-634-11	CERAMIC CHIP	1MF		16V
C183	1-128-004-11	ELECT CHIP	10MF	20%	16V
C201	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C205	1-164-361-11	CERAMIC CHIP	0.047MF		16V
C208	1-164-361-11	CERAMIC CHIP	0.047MF		16V
C209	1-164-361-11	CERAMIC CHIP	0.047MF		16V
C210	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C211	1-164-456-11	CERAMIC CHIP	24PF	5%	50V
C212	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C213	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C214	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C215	1-162-974-11	CERAMIC CHIP	0.01MF		50V

Ref.No	Part No.	Description		Remark	
C218	1-162-968-11	CERAMIC CHIP	0.0047MF	10%	50V
C219	1-162-940-11	CERAMIC CHIP	9PF	0.5PF	50V
C222	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C224	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C225	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C226	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C227	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C228	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C229	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C230	1-128-004-11	ELECT CHIP	10MF	20%	16V
C231	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C232	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C233	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C234	1-162-965-11	CERAMIC CHIP	0.0015MF	10%	50V
C235	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C236	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C237	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C242	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C243	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C244	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C245	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C246	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C255	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C256	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C257	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C258	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C261	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V
C262	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C263	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C265	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C266	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C267	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C268	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C269	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C270	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C271	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C272	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C273	1-128-004-11	ELECT CHIP	10MF	20%	16V
C274	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C275	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C276	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C277	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C278	1-163-106-00	CERAMIC CHIP	36PF	5%	50V
C279	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C280	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C281	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C282	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C283	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C284	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C285	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C286	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C288	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C289	1-128-004-11	ELECT CHIP	10MF	20%	16V
C290	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C291	1-128-004-11	ELECT CHIP	10MF	20%	16V
C292	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C293	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C294	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C295	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C296	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C297	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C298	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C299	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C300	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C301	1-162-974-11	CERAMIC CHIP	0.01MF		50V

Ref.No	Part No.	Description		Remark	
C302	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C303	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C304	1-128-004-11	ELECT CHIP	10MF	20%	16V
C305	1-162-966-11	CERAMIC CHIP	0.0022MF		50V
C308	1-128-011-11	ELECT CHIP	0.33MF	20%	50V
C309	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C310	1-162-965-11	CERAMIC CHIP	0.0015MF	10%	50V
C317	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C318	1-128-004-11	ELECT CHIP	10MF	20%	16V
C319	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C320	1-128-004-11	ELECT CHIP	10MF	20%	16V
C321	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C322	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C323	1-128-008-11	ELECT CHIP	3.3MF	20%	35V
C324	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C325	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C326	1-126-157-11	ELECT	10MF	20%	6.3V
C327	1-126-153-11	ELECT	22MF	20%	6.3V
C328	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C329	1-164-361-11	CERAMIC CHIP	0.047MF		16V
C330	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C331	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C332	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C333	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C334	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C335	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C336	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C337	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C338	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C340	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C341	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C342	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C343	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C344	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C345	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C346	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C347	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C348	1-162-954-11	CERAMIC CHIP	120PF	5%	50V

CONNECTOR

CN003	1-569-558-11	CONNECTOR, BOARD TO BOARD 20P
CN004	1-565-878-11	PIN, CONNECTOR (PC BOARD) 6P
CN007	1-568-366-21	CONNECTOR, BOARD TO BOARD 16P
CN009	1-568-367-11	CONNECTOR, BOARD TO BOARD 18P
CN200	* 1-566-184-11	PIN, CONNECTOR (PC BOARD) 5P

TRIMMER

CT101	1-141-331-11	CAP, VAR, TRIMMER (CHIP)
CT102	1-141-331-11	CAP, VAR, TRIMMER (CHIP)

DIODE

D001	8-719-941-86	DIODE DAN202U
D002	8-719-404-46	DIODE MA110
D003	8-719-404-46	DIODE MA110
D101	8-719-949-46	DIODE 1T32
D102	8-719-404-46	DIODE MA110
D104	8-719-941-86	DIODE DAN202U
D201	8-719-801-41	DIODE 1SS196
D202	8-719-941-86	DIODE DAN202U
D203	8-719-941-86	DIODE DAN202U
D205	8-719-941-86	DIODE DAN202U
D208	8-719-941-86	DIODE DAN202U
D210	8-719-941-86	DIODE DAN202U
D211	8-719-941-86	DIODE DAN202U

When indicating parts by reference number, please include the board name.

IC

Ref.No	Part No.	Description	Remark
IC001	8-752-814-87	IC CXP80116-659Q	
IC003	8-759-998-98	IC LM358DR	
IC004	8-759-148-05	IC CXA8010M	
IC005	8-759-805-06	IC CXA1127M	
IC006	8-759-990-55	IC CXA8006M	
IC007	8-759-008-95	IC MC14028BF	
IC008	8-759-720-05	IC BR93C46F	
IC101	8-759-970-80	IC MB673198U	
IC102	8-759-148-62	IC UPD6451GT-630	
IC103	8-759-420-01	IC AN2512S	
IC104	8-759-234-20	IC TC7S08F	
IC150	8-759-209-53	IC CXA1204Q	
IC201	8-759-012-00	IC MC10H116M	
IC202	8-759-998-92	IC LM393DR	
IC204	8-759-998-32	IC CXD-2107M	

COIL

Ref.No	Part No.	Description	Remark
L001	1-412-058-11	INDUCTOR CHIP 10UH	
L101	1-410-390-11	INDUCTOR CHIP 56UH	
L102	1-410-393-11	INDUCTOR CHIP 100UH	
L103	1-408-797-11	INDUCTOR CHIP 470UH	
L150	1-412-058-11	INDUCTOR CHIP 10UH	
L151	1-408-795-21	INDUCTOR CHIP 330UH	
L152	1-412-058-11	INDUCTOR CHIP 10UH	
L201	1-412-058-11	INDUCTOR CHIP 10UH	
L202	1-412-058-11	INDUCTOR CHIP 10UH	
L203	1-410-732-21	INDUCTOR CHIP 0.18UH	
L205	1-410-384-31	INDUCTOR CHIP 18UH	
L206	1-410-384-31	INDUCTOR CHIP 18UH	
L207	1-410-381-11	INDUCTOR CHIP 10UH	
L208	1-408-793-21	INDUCTOR CHIP 220UH	
L209	1-408-795-21	INDUCTOR CHIP 330UH	
L210	1-410-167-41	INDUCTOR CHIP 820UH	
L211	1-410-387-11	INDUCTOR CHIP 33UH	
L212	1-410-657-21	INDUCTOR CHIP 180UH	
L215	1-410-374-11	INDUCTOR CHIP 2.7UH	
L216	1-410-379-21	INDUCTOR CHIP 6.8UH	
L217	1-410-379-21	INDUCTOR CHIP 6.8UH	
L218	1-410-379-21	INDUCTOR CHIP 6.8UH	
L221	1-408-791-00	INDUCTOR CHIP 150UH	
L222	1-408-795-21	INDUCTOR CHIP 330UH	
L225	1-412-058-11	INDUCTOR CHIP 10UH	
L226	1-410-380-31	INDUCTOR CHIP 8.2UH	
L227	1-412-058-11	INDUCTOR CHIP 10UH	
L228	1-410-382-31	INDUCTOR CHIP 12UH	
L229	1-410-382-31	INDUCTOR CHIP 12UH	
L230	1-410-657-21	INDUCTOR CHIP 180UH	
L231	1-412-058-11	INDUCTOR CHIP 10UH	
L232	1-410-386-11	INDUCTOR CHIP 27UH	
L233	1-410-381-11	INDUCTOR CHIP 10UH	
L234	1-410-381-11	INDUCTOR CHIP 10UH	
L235	1-412-058-11	INDUCTOR CHIP 10UH	
L236	1-412-058-11	INDUCTOR CHIP 10UH	

IC LINK

Ref.No	Part No.	Description	Remark
PS101 ⚠	1-532-605-00	LINK, IC	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q001	8-729-907-00	TRANSISTOR DTC114EU	
Q002	8-729-905-12	TRANSISTOR DTA144EU	
Q003	8-729-905-18	TRANSISTOR DTC144EU	
Q004	8-729-820-46	TRANSISTOR 2SB1202FAT	
Q005	8-729-905-35	TRANSISTOR 2SC4081-R	
Q007	8-729-905-35	TRANSISTOR 2SC4081-R	
Q008	8-729-905-35	TRANSISTOR 2SC4081-R	
Q009	8-729-905-35	TRANSISTOR 2SC4081-R	
Q010	8-729-907-03	TRANSISTOR FMG5	
Q011	8-729-905-18	TRANSISTOR DTC144EU	
Q012	8-729-905-18	TRANSISTOR DTC144EU	
Q013	8-729-905-18	TRANSISTOR DTC144EU	
Q014	8-729-822-48	TRANSISTOR FC101	
Q015	8-729-905-35	TRANSISTOR 2SC4081-R	
Q016	8-729-905-23	TRANSISTOR 2SA1576-R	
Q017	8-729-907-03	TRANSISTOR FMG5	
Q018	8-729-905-18	TRANSISTOR DTC144EU	
Q150	8-729-905-23	TRANSISTOR 2SA1576-R	
Q152	8-729-905-35	TRANSISTOR 2SC4081-R	
Q153	8-729-905-23	TRANSISTOR 2SA1576-R	
Q201	8-729-905-35	TRANSISTOR 2SC4081-R	
Q202	8-729-905-35	TRANSISTOR 2SC4081-R	
Q203	8-729-905-35	TRANSISTOR 2SC4081-R	
Q208	8-729-216-22	TRANSISTOR 2SA1162	
Q209	8-729-905-18	TRANSISTOR DTC144EU	
Q213	8-729-216-22	TRANSISTOR 2SA1162	
Q214	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q215	8-729-216-22	TRANSISTOR 2SA1162	
Q217	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q218	8-729-905-35	TRANSISTOR 2SC4081-R	
Q222	8-729-905-18	TRANSISTOR DTC144EU	
Q223	8-729-905-35	TRANSISTOR 2SC4081-R	
Q224	8-729-904-07	TRANSISTOR FMG2	
Q225	8-729-905-12	TRANSISTOR DTA144EU	
Q227	8-729-905-35	TRANSISTOR 2SC4081-R	
Q229	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q230	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q231	8-729-905-18	TRANSISTOR DTC144EU	
Q232	8-729-905-18	TRANSISTOR DTC144EU	
Q238	8-729-117-31	TRANSISTOR 2SC4177-L5	
Q239	8-729-905-18	TRANSISTOR DTC144EU	
Q240	8-729-905-18	TRANSISTOR DTC144EU	
Q242	8-729-117-31	TRANSISTOR 2SC4177-L5	
Q243	8-729-905-18	TRANSISTOR DTC144EU	
Q244	8-729-140-63	TRANSISTOR 2SA1611-M5M6	
Q245	8-729-117-31	TRANSISTOR 2SC4177-L5	
Q247	8-729-905-35	TRANSISTOR 2SC4081-R	
Q248	8-729-903-10	TRANSISTOR FMW1	
Q249	8-729-905-18	TRANSISTOR DTC144EU	
Q250	8-729-905-12	TRANSISTOR DTA144EU	
Q251	8-729-905-35	TRANSISTOR 2SC4081-R	
Q252	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q254	8-729-905-35	TRANSISTOR 2SC4081-R	
Q255	8-729-904-07	TRANSISTOR FMG2	
Q256	8-729-905-12	TRANSISTOR DTA144EU	
Q257	8-729-905-18	TRANSISTOR DTC144EU	
Q258	8-729-903-10	TRANSISTOR FMW1	
Q259	8-729-905-35	TRANSISTOR 2SC4081-R	
Q260	8-729-905-35	TRANSISTOR 2SC4081-R	
Q261	8-729-905-23	TRANSISTOR 2SA1576-R	
Q262	8-729-905-23	TRANSISTOR 2SA1576-R	
Q263	8-729-907-26	TRANSISTOR IMX1	
Q265	8-729-905-35	TRANSISTOR 2SC4081-R	
Q266	8-729-905-35	TRANSISTOR 2SC4081-R	
Q267	8-729-905-35	TRANSISTOR 2SC4081-R	
Q268	8-729-905-23	TRANSISTOR 2SA1576-R	
Q269	8-729-907-26	TRANSISTOR IMX1	
Q272	8-729-922-94	TRANSISTOR DTC143TU	
Q273	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q277	8-729-905-35	TRANSISTOR 2SC4081-R	

When indicating parts by reference number, please include the board name.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description			Remark
Q278	8-729-905-35	TRANSISTOR 2SC4081-R			
Q279	8-729-905-18	TRANSISTOR DTC144EU			
Q280	8-729-905-35	TRANSISTOR 2SC4081-R			
Q282	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q283	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q284	8-729-905-35	TRANSISTOR 2SC4081-R			
Q285	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q286	8-729-105-68	TRANSISTOR 2SC3356			
Q287	8-729-924-46	TRANSISTOR DTC124XU			
Q288	8-729-905-12	TRANSISTOR DTA144EU			
Q289	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q290	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q291	8-729-907-26	TRANSISTOR IMX1			
Q294	8-729-905-18	TRANSISTOR DTC144EU			

RESISTOR

Ref.No	Part No.	Description			Remark
R001	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R002	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R003	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R004	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R005	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R006	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R007	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R008	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R009	1-216-818-11	METAL GLAZE	560	5%	1/16W
R010	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R011	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R012	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R014	1-216-851-11	METAL GLAZE	330K	5%	1/16W
R015	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R016	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R017	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R018	1-216-850-11	METAL GLAZE	270K	5%	1/16W
R019	1-216-851-11	METAL GLAZE	330K	5%	1/16W
R021	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R022	1-216-025-00	METAL GLAZE	100	5%	1/10W
R023	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R024	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R025	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R026	1-216-864-11	METAL GLAZE	0	5%	1/16W
R027	1-216-864-11	METAL GLAZE	0	5%	1/16W
R029	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R030	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R031	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R032	1-216-037-00	METAL GLAZE	330	5%	1/10W
R033	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R034	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R035	1-216-097-00	METAL GLAZE	100K	1%	1/10W
R036	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R037	1-216-097-00	METAL GLAZE	100K	1%	1/10W
R038	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R039	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R040	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R041	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R042	1-216-864-11	METAL GLAZE	0	5%	1/16W
R043	1-217-671-11	METAL GLAZE	1	5%	1/10W
R044	1-217-671-11	METAL GLAZE	1	5%	1/10W
R045	1-217-671-11	METAL GLAZE	1	5%	1/10W
R046	1-217-671-11	METAL GLAZE	1	5%	1/10W
R049	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R050	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R051	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R053	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R054	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R055	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R056	1-216-838-11	METAL GLAZE	27K	5%	1/16W

Ref.No	Part No.	Description			Remark
R057	1-216-336-11	METAL GLAZE	47K	1%	1/10W
R058	1-216-336-11	METAL GLAZE	47K	1%	1/10W
R059	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R060	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R061	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R063	1-216-037-00	METAL GLAZE	330	5%	1/10W
R066	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R067	1-216-789-11	METAL GLAZE	2.2	5%	1/16W
R068	1-216-789-11	METAL GLAZE	2.2	5%	1/16W
R069	1-216-789-11	METAL GLAZE	2.2	5%	1/16W
R070	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R071	1-216-814-11	METAL GLAZE	270	5%	1/16W
R072	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R073	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R074	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R075	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R076	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R077	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R078	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R079	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R080	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R081	1-216-864-11	METAL GLAZE	0	5%	1/16W
R082	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R083	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R084	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R085	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R086	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R087	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R088	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R089	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R090	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R095	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R097	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R098	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R099	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R100	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R102	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R105	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R106	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R107	1-216-033-00	METAL GLAZE	220	5%	1/10W
R108	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R109	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R110	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R111	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R112	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R113	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R114	1-216-864-11	METAL GLAZE	0	5%	1/16W
R120	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R121	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R122	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R123	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R124	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R125	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R127	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R128	1-216-864-11	METAL GLAZE	0	5%	1/16W
R130	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R131	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R132	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R133	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R134	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R136	1-216-864-11	METAL GLAZE	0	5%	1/16W
R138	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R139	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R140	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R141	1-216-853-11	METAL GLAZE	470K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R142	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R143	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R144	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R145	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R146	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R147	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R148	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R150	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R151	1-216-820-11	METAL GLAZE	820	5%	1/16W
R152	1-216-817-11	METAL GLAZE	470	5%	1/16W
R153	1-216-817-11	METAL GLAZE	470	5%	1/16W
R154	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R155	1-216-818-11	METAL GLAZE	560	5%	1/16W
R156	1-216-814-11	METAL GLAZE	270	5%	1/16W
R157	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R158	1-216-812-11	METAL GLAZE	180	5%	1/16W
R161	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R162	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R163	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R164	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R167	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R168	1-216-864-11	METAL GLAZE	0	5%	1/16W
R169	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R170	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R171	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R172	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R173	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R174	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R175	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R176	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R177	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R178	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R181	1-216-803-11	METAL GLAZE	33	5%	1/16W
R182	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R183	1-216-815-11	METAL GLAZE	330	5%	1/16W
R184	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R185	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R186	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R188	1-216-864-11	METAL GLAZE	0	5%	1/16W
R190	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R193	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R201	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R206	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R207	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R208	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R216	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R217	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R218	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R219	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R228	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R229	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R230	1-216-805-11	METAL GLAZE	47	5%	1/16W
R231	1-216-805-11	METAL GLAZE	47	5%	1/16W
R232	1-216-818-11	METAL GLAZE	560	5%	1/16W
R233	1-216-814-11	METAL GLAZE	270	5%	1/16W
R234	1-216-813-11	METAL GLAZE	220	5%	1/16W
R235	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R236	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R237	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R238	1-216-811-11	METAL GLAZE	150	5%	1/16W
R239	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R240	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R241	1-216-864-11	METAL GLAZE	0	5%	1/16W
R243	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R244	1-216-833-11	METAL GLAZE	10K	5%	1/16W

Ref.No	Part No.	Description			Remark
R245	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R246	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R247	1-216-815-11	METAL GLAZE	330	5%	1/16W
R248	1-216-812-11	METAL GLAZE	180	5%	1/16W
R253	1-216-864-11	METAL GLAZE	0	5%	1/16W
R256	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R257	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R258	1-216-815-11	METAL GLAZE	330	5%	1/16W
R259	1-216-817-11	METAL GLAZE	470	5%	1/16W
R260	1-216-817-11	METAL GLAZE	470	5%	1/16W
R261	1-216-815-11	METAL GLAZE	330	5%	1/16W
R262	1-216-818-11	METAL GLAZE	560	5%	1/16W
R264	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R267	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R268	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R269	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R270	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R281	1-216-864-11	METAL GLAZE	0	5%	1/16W
R285	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R286	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R287	1-216-817-11	METAL GLAZE	470	5%	1/16W
R288	1-216-817-11	METAL GLAZE	470	5%	1/16W
R291	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R292	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R293	1-216-818-11	METAL GLAZE	560	5%	1/16W
R294	1-216-817-11	METAL GLAZE	470	5%	1/16W
R295	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R300	1-216-817-11	METAL GLAZE	470	5%	1/16W
R301	1-216-817-11	METAL GLAZE	470	5%	1/16W
R302	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R303	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R305	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R306	1-216-817-11	METAL GLAZE	470	5%	1/16W
R307	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R308	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R309	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R310	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R311	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R312	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R313	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R314	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R315	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R316	1-216-814-11	METAL GLAZE	270	5%	1/16W
R317	1-216-814-11	METAL GLAZE	270	5%	1/16W
R318	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R319	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R320	1-216-817-11	METAL GLAZE	470	5%	1/16W
R321	1-216-817-11	METAL GLAZE	470	5%	1/16W
R322	1-216-864-11	METAL GLAZE	0	5%	1/16W
R323	1-216-817-11	METAL GLAZE	470	5%	1/16W
R324	1-216-819-11	METAL GLAZE	680	5%	1/16W
R325	1-216-813-11	METAL GLAZE	220	5%	1/16W
R326	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R327	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R328	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R329	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R330	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R331	1-216-817-11	METAL GLAZE	470	5%	1/16W
R332	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R333	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R334	1-216-820-11	METAL GLAZE	820	5%	1/16W
R335	1-216-817-11	METAL GLAZE	470	5%	1/16W
R336	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R337	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R338	1-216-817-11	METAL GLAZE	470	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R339	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R340	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R344	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R346	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R347	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R348	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R349	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R350	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W
R351	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R352	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R353	1-216-817-11	METAL GLAZE	470	5%	1/16W
R354	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R355	1-216-855-11	METAL GLAZE	680K	5%	1/16W
R356	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R358	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R359	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R360	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R361	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R362	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R363	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R364	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R365	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R366	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R367	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R368	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R369	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R370	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R371	1-216-817-11	METAL GLAZE	470	5%	1/16W
R372	1-216-809-11	METAL GLAZE	100	5%	1/16W
R373	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R374	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R375	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R376	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R377	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R378	1-216-817-11	METAL GLAZE	470	5%	1/16W
R379	1-216-809-11	METAL GLAZE	100	5%	1/16W
R380	1-216-849-11	METAL GLAZE	220K	5%	1/16W
R381	1-216-864-11	METAL GLAZE	0	5%	1/16W
R382	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R383	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R384	1-216-850-11	METAL GLAZE	270K	5%	1/16W
R385	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R386	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R387	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R390	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R391	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R392	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R393	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R394	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R395	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R400	1-216-817-11	METAL GLAZE	470	5%	1/16W
R401	1-216-819-11	METAL GLAZE	680	5%	1/16W
R403	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R404	1-216-809-11	METAL GLAZE	100	5%	1/16W
R405	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R406	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R407	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R408	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R409	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R501	1-216-809-11	METAL GLAZE	100	5%	1/16W
R502	1-216-811-11	METAL GLAZE	150	5%	1/16W
R503	1-216-816-11	METAL GLAZE	390	5%	1/16W
R504	1-216-817-11	METAL GLAZE	470	5%	1/16W
R505	1-216-817-11	METAL GLAZE	470	5%	1/16W
R506	1-216-817-11	METAL GLAZE	470	5%	1/16W

Ref.No	Part No.	Description			Remark
R507	1-216-817-11	METAL GLAZE	470	5%	1/16W
R508	1-216-818-11	METAL GLAZE	560	5%	1/16W
R509	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R510	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R511	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R512	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R513	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R515	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R516	1-216-820-11	METAL GLAZE	820	5%	1/16W
R517	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R521	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R522	1-216-818-11	METAL GLAZE	560	5%	1/16W
R523	1-216-817-11	METAL GLAZE	470	5%	1/16W
R524	1-216-817-11	METAL GLAZE	470	5%	1/16W
R525	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R526	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R527	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R528	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R529	1-216-839-11	METAL GLAZE	33K	5%	1/16W

VARIABLE RESISTOR

RV100	1-238-092-11	RES, ADJ CERMET 47K
RV201	1-238-222-11	RES, ADJ, METAL GLAZE 4.7K
RV202	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K
RV203	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K
RV205	1-238-089-11	RES, ADJ CERMET 4.7K
RV206	1-238-088-11	RES, ADJ, CERMET 2.2K
RV207	1-238-087-11	RES, ADJ CERMET 1K

THERMISTOR

TH001	1-800-200-00	THERMISTOR

TESTPOINT

TP001	*1-535-622-11	PIN, TERMINAL

CRYSTAL

X001	1-577-116-21	VIBRATOR, CRYSTAL (16MHz)
X150	1-567-735-11	VIBRATOR, CRYSTAL (5.9MHz)

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***A-7062-083-A VA-45 BOARD, COMPLETE** (Ref. No. 1000 series)

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	1-566-850-31	CONNECTOR, (S) TERMINAL 4P (S VIDEO) (J650)
	1-569-556-11	JACK (VIDEO/AUDIO) (J651)
	1-634-428-11	FP-257 FLEXIBLE BOARD
	1-634-430-11	FP-259 FLEXIBLE BOARD
	1-634-431-11	FP-260 FLEXIBLE BOARD
	3-719-381-01	SCREW (M2X4)
	3-744-791-01	CASE, SHIELD, VA
	*3-744-792-01	LID, REAR, VA SHIELD
	*3-744-799-01	CASE, SHIELD, FL
	7-627-553-47	SCREW,PRECISION P 2X4

CAPACITOR

C415	1-128-003-11	ELECT CHIP	22MF	20%	4V
C416	1-128-004-11	ELECT CHIP	10MF	20%	16V
C417	1-128-004-11	ELECT CHIP	10MF	20%	16V
C418	1-128-004-11	ELECT CHIP	10MF	20%	16V
C423	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C424	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C425	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C427	1-128-004-11	ELECT CHIP	10MF	20%	16V
C428	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C430	1-162-974-11	CERAMIC CHIP	0.01MF		50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description		Remark	
C436	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C437	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C439	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C447	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C448	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C449	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C452	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C456	1-162-932-11	CERAMIC CHIP	2PF	0.25PF	50V
C461	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C462	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C464	1-164-227-11	CERAMIC CHIP	0.022MF	10%	25V
C465	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C466	1-162-995-11	CERAMIC CHIP	0.022MF		50V
C467	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C551	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C555	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C556	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C557	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C558	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C559	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C562	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C563	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C564	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C565	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C566	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C567	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C568	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C601	1-135-201-11	TANTAL. CHIP	10MF	20%	4V
C602	1-135-201-11	TANTAL. CHIP	10MF	20%	4V
C603	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C604	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C605	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C606	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C607	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C608	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C611	1-135-201-11	TANTAL. CHIP	10MF	20%	4V
C612	1-135-201-11	TANTAL. CHIP	10MF	20%	4V
C650	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C651	1-128-004-11	ELECT CHIP	10MF	20%	16V
C652	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C653	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C654	1-124-779-00	ELECT CHIP	10MF	20%	16V
C656	1-135-180-21	TANTAL. CHIP	3.3MF	20%	4V
C657	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C658	1-128-004-11	ELECT CHIP	10MF	20%	16V
C659	1-135-180-21	TANTAL. CHIP	3.3MF	20%	4V
C660	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C662	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C663	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C664	1-128-004-11	ELECT CHIP	10MF	20%	16V
C665	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C666	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C667	1-163-059-00	CERAMIC CHIP	0.01MF		50V
C668	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C669	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C670	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C671	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C672	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C673	1-128-004-11	ELECT CHIP	10MF	20%	16V
C674	1-126-207-11	ELECT CHIP	33MF	20%	4V
C675	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C677	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C680	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C681	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C685	1-162-974-11	CERAMIC CHIP	0.01MF		50V

Ref.No	Part No.	Description		Remark	
C686	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C687	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C688	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C689	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C690	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C691	1-126-154-11	ELECT	47MF	20%	6.3V
C692	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C693	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C694	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C695	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C696	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C697	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C698	1-135-087-21	TANTAL. CHIP	0.68MF	20%	20V
C699	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C700	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C701	1-128-004-11	ELECT CHIP	10MF	20%	16V
C702	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C703	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C705	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C706	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C707	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C708	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C709	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C710	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C711	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C712	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C713	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C714	1-163-009-11	CERAMIC CHIP	0.001MF		50V
C715	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C716	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C717	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C718	1-136-015-00	CERAMIC CHIP	0.0033MF		50V
C736	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C737	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C738	1-162-937-11	CERAMIC CHIP	6PF	0.5PF	50V
C739	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C740	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C741	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C742	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C743	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C744	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C745	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C746	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C747	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C748	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C749	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C750	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C751	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C752	1-126-156-11	ELECT	4.7MF	20%	16V
C753	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C754	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C755	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C756	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C757	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C758	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C759	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C760	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C761	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C763	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C764	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C765	1-128-004-11	ELECT CHIP	10MF	20%	16V
C766	1-126-245-11	ELECT	330MF	20%	6.3V
C767	1-128-006-11	ELECT CHIP	4.7MF	20%	25V
C768	1-126-607-11	ELECT CHIP	47MF	20%	4V
C769	1-128-004-11	ELECT CHIP	10MF	20%	16V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C771	1-128-003-11	ELECT CHIP	22MF	20%	4V
C772	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C774	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C775	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C776	1-126-155-11	ELECT	100MF	20%	6.3V
C777	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C778	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C781	1-162-939-11	CERAMIC CHIP	8PF	0.5PF	50V
C782	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C783	1-128-003-11	ELECT CHIP	22MF	20%	4V
C784	1-128-004-11	ELECT CHIP	10MF	20%	16V
C785	1-126-607-11	ELECT CHIP	47MF	20%	4V
C786	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C787	1-128-004-11	ELECT CHIP	10MF	20%	16V
C788	1-128-004-11	ELECT CHIP	10MF	20%	16V
C789	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C790	1-162-938-11	CERAMIC CHIP	7PF	0.5PF	50V
C794	1-164-634-11	CERAMIC CHIP	1MF		16V
C796	1-128-008-11	ELECT CHIP	3.3MF	20%	35V
C797	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C798	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C799	1-128-008-11	ELECT CHIP	3.3MF	20%	35V
C800	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C801	1-128-004-11	ELECT CHIP	10MF	20%	16V
C802	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C803	1-128-008-11	ELECT CHIP	3.3MF	20%	35V
C805	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C806	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C808	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C809	1-164-634-11	CERAMIC CHIP	1MF		16V
C811	1-128-008-11	ELECT CHIP	3.3MF	20%	35V
C812	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C813	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C814	1-128-008-11	ELECT CHIP	3.3MF	20%	35V
C815	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C816	1-128-004-11	ELECT CHIP	10MF	20%	16V
C817	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C818	1-128-008-11	ELECT CHIP	3.3MF	20%	35V
C819	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C821	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C824	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C826	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C827	1-128-004-11	ELECT CHIP	10MF	20%	16V
C828	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C829	1-128-004-11	ELECT CHIP	10MF	20%	16V
C831	1-126-425-11	ELECT	10MF	20%	10V
C832	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C833	1-128-004-11	ELECT CHIP	10MF	20%	16V
C836	1-128-004-11	ELECT CHIP	10MF	20%	16V
C837	1-128-006-11	ELECT CHIP	4.7MF	20%	25V
C838	1-126-245-11	ELECT	330MF	20%	6.3V
C839	1-126-607-11	ELECT CHIP	47MF	20%	4V
C840	1-128-004-11	ELECT CHIP	10MF	20%	16V
C841	1-128-004-11	ELECT CHIP	10MF	20%	16V
C842	1-128-004-11	ELECT CHIP	10MF	20%	16V
C843	1-126-607-11	ELECT CHIP	47MF	20%	4V
C844	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C845	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C848	1-128-004-11	ELECT CHIP	10MF	20%	16V
C851	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C853	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C856	1-164-145-11	CERAMIC CHIP	390PF	5%	50V
C857	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C858	1-126-245-11	ELECT	330MF	20%	6.3V
C859	1-128-004-11	ELECT CHIP	10MF	20%	16V

Ref.No	Part No.	Description			Remark
C860	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C861	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C862	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C863	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C864	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C865	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C867	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C869	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C870	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C871	1-128-004-11	ELECT CHIP	10MF	20%	16V
C872	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C873	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C875	1-128-003-11	ELECT CHIP	22MF	20%	4V
C876	1-128-004-11	ELECT CHIP	10MF	20%	16V
C878	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C880	1-128-003-11	ELECT CHIP	22MF	20%	4V
C881	1-162-974-11	CERAMIC CHIP	0.01MF		50V

CERAMIC FILTER

CF650	1-567-306-11	FILTER, CERAMIC

CONNECTOR

CN551	1-568-801-11	CONNECTOR, FPC (ZIF) 24P
CN552	*1-565-875-11	PIN, CONNECTOR (PC BOARD) 3P
CN650	*1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P

DIODE

D415	8-719-421-32	DIODE MA141A-TX
D417	8-719-941-86	DIODE DAN202U
D419	8-719-941-86	DIODE DAN202U
D420	8-719-941-86	DIODE DAN202U
D422	8-719-941-86	DIODE DAN202U
D423	8-719-941-86	DIODE DAN202U
D427	8-719-941-86	DIODE DAN202U
D428	8-719-941-86	DIODE DAN202U
D551	8-719-404-46	DIODE MA110
D552	8-719-941-86	DIODE DAN202U
D553	8-719-941-86	DIODE DAN202U
D554	8-719-404-46	DIODE MA110
D650	8-719-941-86	DIODE DAN202U
D651	8-719-941-86	DIODE DAN202U
D652	8-719-941-86	DIODE DAN202U
D654	8-719-941-86	DIODE DAN202U
D655	8-719-800-76	DIODE 1SS123
D656	8-719-941-86	DIODE DAN202U
D657	8-719-800-76	DIODE 1SS123
D658	8-719-941-86	DIODE DAN202U
D659	8-719-941-86	DIODE DAN202U
D661	8-719-941-86	DIODE DAN202U
D662	8-719-951-22	DIODE IMN10
D663	8-719-941-86	DIODE DAN202U
D664	8-719-941-86	DIODE DAN202U
D667	8-719-951-22	DIODE IMN10
D669	8-719-978-43	DIODE DTZ9.1B
D670	8-719-978-43	DIODE DTZ9.1B
D671	8-719-978-43	DIODE DTZ9.1B
D672	8-719-978-43	DIODE DTZ9.1B
D674	8-719-978-43	DIODE DTZ9.1B
D675	8-719-978-43	DIODE DTZ9.1B
D676	8-719-978-43	DIODE DTZ9.1B
D677	8-719-978-43	DIODE DTZ9.1B
D678	8-719-978-43	DIODE DTZ9.1B
D679	8-719-978-43	DIODE DTZ9.1B
D680	8-719-978-43	DIODE DTZ9.1B
D681	8-719-978-43	DIODE DTZ9.1B

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
D690	8-719-941-86	DIODE DAN202U	

FILTER

Ref.No	Part No.	Description	Remark
FL650	1-236-146-11	FILTER, BAND PASS	
FL651	1-236-575-11	B.P.F (PAL-M)	
FL653	1-415-729-21	DELAY LINE, LC (Y)	
FL655	1-236-757-21	FILTER, LOW PASS (C)	
FL656	1-236-773-21	FILTER, LOW PASS (Y)	
FL657	1-236-775-11	FILTER, LOW PASS (DEM)	
FL658	1-236-774-11	FILTER, LOW PASS (Y)	

IC

Ref.No	Part No.	Description	Remark
IC416	8-759-710-09	IC NJM2233AM	
IC551	8-759-009-07	IC MC14053BF	
IC553	8-759-998-98	IC LM358DR	
IC554	8-759-932-54	IC MC14066BF	
IC555	8-759-701-02	IC NJM2073M	
IC650	8-752-036-19	IC CXA1207R	
IC651	8-752-036-20	IC CXA1208R	
IC653	8-759-925-60	IC BA401	
IC654	8-752-009-51	IC CX20095A	
IC656	8-759-320-76	IC HA118070FP	
IC657	8-752-334-44	IC CXL5502M	
IC658	8-752-332-68	IC CXL5502M	
IC659	8-759-710-29	IC NJM2235M	
IC660	8-759-710-07	IC NJM2234M	
IC661	8-759-710-07	IC NJM2234M	
IC662	8-759-009-22	IC MC14094BF	
IC663	8-759-710-29	IC NJM2235M	

COIL

Ref.No	Part No.	Description	Remark
L443	1-412-058-11	INDUCTOR CHIP 10UH	
L444	1-410-379-31	INDUCTOR CHIP 6.8UH	
L445	1-408-982-11	INDUCTOR 100UH	
L650	1-410-393-11	INDUCTOR CHIP 100UH	
L651	1-410-375-11	INDUCTOR CHIP 3.3UH	
L653	1-410-384-31	INDUCTOR CHIP 18UH	
L654	1-410-386-11	INDUCTOR CHIP 27UH	
L656	1-408-788-21	INDUCTOR CHIP 82UH	
L657	1-410-385-11	INDUCTOR CHIP 22UH	
L658	1-410-393-11	INDUCTOR CHIP 100UH	
L659	1-410-655-31	INDUCTOR CHIP 120UH	
L660	1-410-393-11	INDUCTOR CHIP 100UH	
L661	1-410-656-11	INDUCTOR CHIP 150UH	
L662	1-410-393-11	INDUCTOR CHIP 100UH	
L663	1-410-381-11	INDUCTOR CHIP 10UH	
L664	1-410-381-11	INDUCTOR CHIP 10UH	
L665	1-410-383-31	INDUCTOR CHIP 15UH	
L666	1-410-384-31	INDUCTOR CHIP 18UH	
L667	1-408-797-11	INDUCTOR CHIP 470UH	
L668	1-408-797-11	INDUCTOR CHIP 470UH	
L669	1-410-384-31	INDUCTOR CHIP 18UH	
L670	1-410-389-31	INDUCTOR CHIP 47UH	
L671	1-410-389-31	INDUCTOR CHIP 47UH	
L673	1-410-385-11	INDUCTOR CHIP 22UH	
L674	1-410-385-11	INDUCTOR CHIP 22UH	
L676	1-410-380-31	INDUCTOR CHIP 8.2UH	
L678	1-410-393-11	INDUCTOR CHIP 100UH	
L679	1-410-386-11	INDUCTOR CHIP 27UH	
L681	1-412-058-11	INDUCTOR CHIP 10UH	
L682	1-410-389-31	INDUCTOR CHIP 47UH	
L683	1-412-058-11	INDUCTOR CHIP 10UH	
L684	1-410-389-31	INDUCTOR CHIP 47UH	
L685	1-410-389-31	INDUCTOR CHIP 47UH	
L687	1-410-378-11	INDUCTOR CHIP 5.6UH	
L688	1-410-378-11	INDUCTOR CHIP 5.6UH	
L689	1-410-389-31	INDUCTOR CHIP 47UH	
L690	1-410-369-11	INDUCTOR CHIP 1UH	
L691	1-410-389-31	INDUCTOR CHIP 47UH	
L692	1-410-655-31	INDUCTOR CHIP 120UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q411	8-729-905-23	TRANSISTOR 2SA1576-R	
Q415	8-729-905-23	TRANSISTOR 2SA1576-R	
Q416	8-729-905-35	TRANSISTOR 2SC4081-R	
Q417	8-729-905-12	TRANSISTOR DTA144EU	
Q418	8-729-905-35	TRANSISTOR 2SC4081-R	
Q421	8-729-905-23	TRANSISTOR 2SA1576-R	
Q426	8-729-905-35	TRANSISTOR 2SC4081-R	
Q427	8-729-905-35	TRANSISTOR 2SC4081-R	
Q433	8-729-905-35	TRANSISTOR 2SC4081-R	
Q434	8-729-905-23	TRANSISTOR 2SA1576-R	
Q444	8-729-905-35	TRANSISTOR 2SC4081-R	
Q446	8-729-905-35	TRANSISTOR 2SC4081-R	
Q447	8-729-905-12	TRANSISTOR DTA144EU	
Q452	8-729-905-18	TRANSISTOR DTC144EU	
Q469	8-729-905-18	TRANSISTOR DTC144EU	
Q490	8-729-905-35	TRANSISTOR 2SC4081-R	
Q491	8-729-905-12	TRANSISTOR DTA144EU	
Q493	8-729-905-12	TRANSISTOR DTA144EU	
Q494	8-729-905-35	TRANSISTOR 2SC4081-R	
Q496	8-729-905-35	TRANSISTOR 2SC4081-R	
Q498	8-729-905-18	TRANSISTOR DTC144EU	
Q551	8-729-905-23	TRANSISTOR 2SA1576-R	
Q552	8-729-905-23	TRANSISTOR 2SA1576-R	
Q553	8-729-905-35	TRANSISTOR 2SC4081-R	
Q554	8-729-905-35	TRANSISTOR 2SC4081-R	
Q555	8-729-905-35	TRANSISTOR 2SC4081-R	
Q556	8-729-905-35	TRANSISTOR 2SC4081-R	
Q557	8-729-905-18	TRANSISTOR DTC144EU	
Q558	8-729-905-12	TRANSISTOR DTA144EU	
Q559	8-729-905-23	TRANSISTOR 2SA1576-R	
Q560	8-729-905-18	TRANSISTOR DTC144EU	
Q561	8-729-907-26	TRANSISTOR IMX1	
Q562	8-729-904-07	TRANSISTOR FMG2	
Q603	8-729-905-35	TRANSISTOR 2SC4081-R	
Q606	8-729-902-93	TRANSISTOR FMG4	
Q607	8-729-922-95	TRANSISTOR DTC143TU	
Q608	8-729-905-23	TRANSISTOR 2SA1576-R	
Q641	8-729-905-12	TRANSISTOR DTA144EU	
Q643	8-729-905-23	TRANSISTOR 2SA1576-R	
Q644	8-729-905-12	TRANSISTOR DTA144EU	
Q645	8-729-900-89	TRANSISTOR DTC144ES	
Q645	8-729-905-18	TRANSISTOR DTC144EU	
Q655	8-729-905-12	TRANSISTOR DTA144EU	
Q657	8-729-905-35	TRANSISTOR 2SC4081-R	
Q658	8-729-905-35	TRANSISTOR 2SC4081-R	
Q659	8-729-905-35	TRANSISTOR 2SC4081-R	
Q660	8-729-905-35	TRANSISTOR 2SC4081-R	
Q661	8-729-905-12	TRANSISTOR DTA144EU	
Q662	8-729-905-12	TRANSISTOR DTA144EU	
Q665	8-729-905-45	TRANSISTOR DTA143EU	
Q666	8-729-905-23	TRANSISTOR 2SA1576-R	
Q668	8-729-905-35	TRANSISTOR 2SC4081-R	
Q669	8-729-905-12	TRANSISTOR DTA144EU	
Q670	8-729-903-10	TRANSISTOR FMW1	
Q671	8-729-905-23	TRANSISTOR 2SA1576-R	
Q674	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q675	8-729-905-18	TRANSISTOR DTC144EU	
Q676	8-729-905-12	TRANSISTOR DTA144EU	
Q677	8-729-905-12	TRANSISTOR DTA144EU	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q678	8-729-202-38	TRANSISTOR 2SC3326N	
Q679	8-729-202-38	TRANSISTOR 2SC3326N	
Q681	8-729-905-35	TRANSISTOR 2SC4081-R	
Q683	8-729-905-23	TRANSISTOR 2SA1576-R	
Q686	8-729-905-35	TRANSISTOR 2SC4081-R	
Q687	8-729-905-35	TRANSISTOR 2SC4081-R	
Q690	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q691	8-729-905-18	TRANSISTOR DTC144EU	
Q692	8-729-905-18	TRANSISTOR DTC144EU	
Q693	8-729-905-35	TRANSISTOR 2SC4081-R	
Q694	8-729-905-35	TRANSISTOR 2SC4081-R	
Q695	8-729-905-12	TRANSISTOR DTA144EU	
Q696	8-729-905-18	TRANSISTOR DTC144EU	
Q697	8-729-905-35	TRANSISTOR 2SC4081-R	
Q698	8-729-903-10	TRANSISTOR FMW1	
Q700	8-729-202-38	TRANSISTOR 2SC3326N	
Q701	8-729-905-35	TRANSISTOR 2SC4081-R	
Q702	8-729-905-35	TRANSISTOR 2SC4081-R	
Q703	8-729-903-10	TRANSISTOR FMW1	
Q705	8-729-905-12	TRANSISTOR DTA144EU	
Q707	8-729-904-20	TRANSISTOR FMA2	
Q708	8-729-904-07	TRANSISTOR FMG2	
Q711	8-729-905-12	TRANSISTOR DTA144EU	
Q712	8-729-905-12	TRANSISTOR DTA144EU	
Q715	8-729-905-18	TRANSISTOR DTC144EU	
Q717	8-729-905-23	TRANSISTOR 2SA1576-R	
Q719	8-729-905-18	TRANSISTOR DTC144EU	
Q721	8-729-202-38	TRANSISTOR 2SC3326N	
Q722	8-729-905-35	TRANSISTOR 2SC4081-R	
Q724	8-729-905-23	TRANSISTOR 2SA1576-R	
Q727	8-729-905-45	TRANSISTOR DTA143EU	
Q728	8-729-905-23	TRANSISTOR 2SA1576-R	
Q729	8-729-905-35	TRANSISTOR 2SC4081-R	
Q730	8-729-905-23	TRANSISTOR 2SA1576-R	
Q731	8-729-905-12	TRANSISTOR DTA144EU	
Q732	8-729-905-35	TRANSISTOR 2SC4081-R	
Q737	8-729-905-35	TRANSISTOR 2SC4081-R	
Q738	8-729-905-35	TRANSISTOR 2SC4081-R	
Q742	8-729-905-23	TRANSISTOR 2SA1576-R	
Q743	8-729-905-35	TRANSISTOR 2SC4081-R	
Q744	8-729-905-35	TRANSISTOR 2SC4081-R	
Q745	8-729-905-18	TRANSISTOR DTC144EU	
Q746	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q747	8-729-905-23	TRANSISTOR 2SA1576-R	
Q748	8-729-905-35	TRANSISTOR 2SC4081-R	
Q752	8-729-905-23	TRANSISTOR 2SA1576-R	
Q753	8-729-904-20	TRANSISTOR FMA2	
Q757	8-729-905-35	TRANSISTOR 2SC4081-R	
Q758	8-729-905-23	TRANSISTOR 2SA1576-R	
Q759	8-729-905-35	TRANSISTOR 2SC4081-R	
Q760	8-729-905-12	TRANSISTOR DTA144EU	
Q761	8-729-905-18	TRANSISTOR DTC144EU	
Q762	8-729-905-18	TRANSISTOR DTC144EU	
Q763	8-729-905-18	TRANSISTOR DTC144EU	
Q764	8-729-905-35	TRANSISTOR 2SC4081-R	
Q765	8-729-905-35	TRANSISTOR 2SC4081-R	
Q766	8-729-905-23	TRANSISTOR 2SA1576-R	
Q767	8-729-905-18	TRANSISTOR DTC144EU	
Q770	8-729-101-07	TRANSISTOR 2SB798-L	
Q771	8-729-905-35	TRANSISTOR 2SC4081-R	
Q772	8-729-905-12	TRANSISTOR DTA144EU	
Q773	8-729-905-12	TRANSISTOR DTA144EU	
Q774	8-729-905-35	TRANSISTOR 2SC4081-R	
Q775	8-729-905-18	TRANSISTOR DTC144EU	
Q776	8-729-905-12	TRANSISTOR DTA144EU	

Ref.No	Part No.	Description	Remark
Q777	8-729-905-23	TRANSISTOR 2SA1576-R	
Q786	8-729-905-18	TRANSISTOR DTC144EU	

RESISTOR

Ref.No	Part No.	Description				Remark
R410	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R411	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W	
R412	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R414	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R415	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R418	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R419	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R420	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R421	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W	
R422	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R423	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R424	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R425	1-216-847-11	METAL GLAZE	150K	5%	1/16W	
R427	1-216-847-11	METAL GLAZE	150K	5%	1/16W	
R428	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R429	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R430	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R431	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R437	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R445	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R447	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R448	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R451	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R453	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R455	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R456	1-216-856-11	METAL GLAZE	820K	5%	1/16W	
R457	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R458	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R459	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R460	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R462	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R463	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R464	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R465	1-216-839-11	METAL GLAZE	33K	5%	1/16W	
R466	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R467	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R468	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R471	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R472	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R475	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R484	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R485	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R486	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R489	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R490	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R491	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W	
R492	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R496	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R558	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R559	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R560	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R561	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R562	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R563	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R564	1-216-819-11	METAL GLAZE	680	5%	1/16W	
R565	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R567	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R568	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R569	1-216-819-11	METAL GLAZE	680	5%	1/16W	
R570	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R571	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	

Ref.No	Part No.	Description			Remark
R572	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R574	1-216-805-11	METAL GLAZE	47	5%	1/16W
R575	1-216-805-11	METAL GLAZE	47	5%	1/16W
R576	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R577	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R578	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R579	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R581	1-216-814-11	METAL GLAZE	270	5%	1/16W
R582	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R585	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R586	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R587	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R588	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R589	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R590	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R591	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R601	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R604	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R607	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R608	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R609	1-216-819-11	METAL GLAZE	680	5%	1/16W
R610	1-216-819-11	METAL GLAZE	680	5%	1/16W
R611	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R612	1-216-789-11	METAL GLAZE	2.2	5%	1/16W
R613	1-216-789-11	METAL GLAZE	2.2	5%	1/16W
R617	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R619	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R620	1-216-855-11	METAL GLAZE	680K	5%	1/16W
R621	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R622	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R623	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R625	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R627	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R630	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R631	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R632	1-216-816-11	METAL GLAZE	390	5%	1/16W
R634	1-216-864-11	METAL GLAZE	0	5%	1/16W
R636	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R638	1-216-801-11	METAL GLAZE	22	5%	1/16W
R639	1-216-864-11	METAL GLAZE	0	5%	1/16W
R640	1-216-864-11	METAL GLAZE	0	5%	1/16W
R641	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R644	1-216-864-11	METAL GLAZE	0	5%	1/16W
R645	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R646	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R647	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R648	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R650	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R651	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R652	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R654	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R655	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R657	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R658	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R659	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R660	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R664	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R665	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R667	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R668	1-216-864-11	METAL GLAZE	0	5%	1/16W
R669	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R670	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R671	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R672	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R673	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R674	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R675	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R676	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R677	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R678	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R679	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R680	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R681	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R682	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R683	1-216-811-11	METAL GLAZE	150	5%	1/16W
R684	1-216-813-11	METAL GLAZE	220	5%	1/16W
R686	1-216-814-11	METAL GLAZE	270	5%	1/16W
R688	1-216-815-11	METAL GLAZE	330	5%	1/16W
R690	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R691	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R692	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R693	1-216-820-11	METAL GLAZE	820	5%	1/16W
R694	1-216-815-11	METAL GLAZE	330	5%	1/16W
R695	1-216-815-11	METAL GLAZE	330	5%	1/16W
R696	1-216-810-11	METAL GLAZE	120	5%	1/16W
R697	1-216-864-11	METAL GLAZE	0	5%	1/16W
R698	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R700	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R703	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R704	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R705	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R707	1-216-864-11	METAL GLAZE	0	5%	1/16W
R709	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R710	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R711	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R712	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R713	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R714	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R715	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R716	1-216-039-00	METAL GLAZE	390	5%	1/10W
R718	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R719	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R720	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R721	1-216-041-00	METAL GLAZE	470	5%	1/10W
R723	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R724	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R725	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R726	1-216-817-11	METAL GLAZE	470	5%	1/16W
R728	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R729	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R731	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R732	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R735	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R738	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R739	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R741	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R742	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R743	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R744	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R746	1-216-864-11	METAL GLAZE	0	5%	1/16W
R747	1-216-864-11	METAL GLAZE	0	5%	1/16W
R748	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R749	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R750	1-216-818-11	METAL GLAZE	560	5%	1/16W
R751	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R766	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R767	1-216-817-11	METAL GLAZE	470	5%	1/16W
R774	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R775	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R776	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R777	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R778	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R779	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R780	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R781	1-216-814-11	METAL GLAZE	270	5%	1/16W
R782	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R783	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R784	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R785	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R786	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R787	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R788	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R789	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R790	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R791	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R792	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R793	1-216-815-11	METAL GLAZE	330	5%	1/16W
R794	1-216-814-11	METAL GLAZE	270	5%	1/16W
R795	1-216-810-11	METAL GLAZE	120	5%	1/16W
R796	1-216-801-11	METAL GLAZE	22	5%	1/16W
R797	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R798	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R799	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R801	1-216-817-11	METAL GLAZE	470	5%	1/16W
R802	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R803	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R804	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R805	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R807	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R808	1-216-818-11	METAL GLAZE	560	5%	1/16W
R809	1-216-815-11	METAL GLAZE	330	5%	1/16W
R810	1-216-820-11	METAL GLAZE	820	5%	1/16W
R811	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R812	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R813	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R814	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R815	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R817	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R818	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R819	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R820	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R822	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R823	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R824	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R825	1-216-817-11	METAL GLAZE	470	5%	1/16W
R826	1-216-819-11	METAL GLAZE	680	5%	1/16W
R828	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R831	1-216-864-11	METAL GLAZE	0	5%	1/16W
R832	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R834	1-216-814-11	METAL GLAZE	270	5%	1/16W
R835	1-216-814-11	METAL GLAZE	270	5%	1/16W
R836	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R837	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R838	1-216-817-11	METAL GLAZE	470	5%	1/16W
R839	1-216-817-11	METAL GLAZE	470	5%	1/16W
R840	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R841	1-216-817-11	METAL GLAZE	470	5%	1/16W
R846	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R847	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R848	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R849	1-216-807-11	METAL GLAZE	68	5%	1/16W
R850	1-216-814-11	METAL GLAZE	270	5%	1/16W
R851	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R852	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R853	1-216-864-11	METAL GLAZE	0	5%	1/16W
R854	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R856	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R859	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R860	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R861	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R862	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R863	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R865	1-216-816-11	METAL GLAZE	390	5%	1/16W
R866	1-216-817-11	METAL GLAZE	470	5%	1/16W
R869	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R870	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R872	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R873	1-216-864-11	METAL GLAZE	0	5%	1/16W
R874	1-216-864-11	METAL GLAZE	0	5%	1/16W
R875	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R876	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R877	1-216-817-11	METAL GLAZE	470	5%	1/16W
R878	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R879	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R880	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R881	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R882	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R883	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R884	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R885	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R886	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R887	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R888	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R889	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R891	1-216-864-11	METAL GLAZE	0	5%	1/16W
R892	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R893	1-216-842-11	METAL GLAZE	56K	5%	1/16W
R894	1-216-817-11	METAL GLAZE	470	5%	1/16W
R895	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R896	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R897	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R898	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R899	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R900	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R901	1-216-804-11	METAL GLAZE	39	5%	1/16W
R902	1-216-804-11	METAL GLAZE	39	5%	1/16W
R903	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R905	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R908	1-216-804-11	METAL GLAZE	39	5%	1/16W
R909	1-216-804-11	METAL GLAZE	39	5%	1/16W
R914	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R917	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R919	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R920	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R923	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R924	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R925	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R926	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R928	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R929	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R931	1-216-818-11	METAL GLAZE	560	5%	1/16W
R932	1-216-817-11	METAL GLAZE	470	5%	1/16W
R934	1-216-817-11	METAL GLAZE	470	5%	1/16W
R935	1-216-817-11	METAL GLAZE	470	5%	1/16W
R936	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R938	1-216-813-11	METAL GLAZE	220	5%	1/16W
R939	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R940	1-216-812-11	METAL GLAZE	180	5%	1/16W
R941	1-216-812-11	METAL GLAZE	180	5%	1/16W
R943	1-216-813-11	METAL GLAZE	220	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R944	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R945	1-216-848-11	METAL GLAZE	180K	5%	1/16W
R947	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R948	1-216-814-11	METAL GLAZE	270	5%	1/16W
R949	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R950	1-216-846-11	METAL GLAZE	120K	5%	1/16W
R951	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R952	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R953	1-216-819-11	METAL GLAZE	680	5%	1/16W
R954	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R955	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R956	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R957	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R958	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R959	1-216-817-11	METAL GLAZE	470	5%	1/16W
R960	1-216-816-11	METAL GLAZE	390	5%	1/16W
R961	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R962	1-216-804-11	METAL GLAZE	39	5%	1/16W
R963	1-216-804-11	METAL GLAZE	39	5%	1/16W
R965	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R966	1-216-296-00	METAL GLAZE	0	5%	1/8W
R969	1-216-138-00	METAL GLAZE	3.3	5%	1/8W
R970	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R971	1-216-820-11	METAL GLAZE	820	5%	1/16W
R972	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R973	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R974	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R976	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R977	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R978	1-216-818-11	METAL GLAZE	560	5%	1/16W
R981	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R983	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R984	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R985	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R986	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R987	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R989	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV416	1-238-092-11	RES, ADJ CERMET 47K
RV417	1-238-089-11	RES, ADJ CERMET 4.7K
RV650	1-238-091-11	RES, ADJ CERMET 22K
RV651	1-238-092-11	RES, ADJ CERMET 47K
RV652	1-238-091-11	RES, ADJ CERMET 22K
RV653	1-238-089-11	RES, ADJ CERMET 4.7K
RV654	1-238-089-11	RES, ADJ CERMET 4.7K
RV655	1-238-088-11	RES, ADJ, CERMET 2.2K
RV656	1-238-091-11	RES, ADJ CERMET 22K
RV657	1-238-089-11	RES, ADJ CERMET 4.7K
RV661	1-238-089-11	RES, ADJ CERMET 4.7K
RV662	1-238-087-11	RES, ADJ CERMET 1K
RV663	1-238-087-11	RES, ADJ CERMET 1K
RV664	1-238-087-11	RES, ADJ CERMET 1K
RV666	1-238-087-11	RES, ADJ CERMET 1K

SWITCH

Ref.No	Part No.	Description
SW650	1-553-977-00	SWITCH, SLIDE (IN/OUT)

CRYSTAL

Ref.No	Part No.	Description
X650	1-577-080-11	VIBRATOR, CRYSTAL (3.58MHz)

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Ref.No	Part No.	Description	Remark
	*A-7071-081-A	FK-16 BOARD, COMPLETE	(Ref. No. 3000 series)

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DIODE

Ref.No	Part No.	Description
D501	8-719-940-45	DIODE DWA010

SWITCH

Ref.No	Part No.	Description
S501	1-571-787-11	SWITCH, TACTILE (MENU)
S502	1-571-787-11	SWITCH, TACTILE (SLOW)
S503	1-571-787-11	SWITCH, TACTILE (▷)
S504	1-571-787-11	SWITCH, TACTILE (>)
S505	1-571-787-11	SWITCH, TACTILE (<)
S506	1-571-787-11	SWITCH, TACTILE (PAUSE)
S507	1-571-787-11	SWITCH, TACTILE (EXCUTE)
S508	1-572-284-11	SWITCH, SLIDE (REC)
S509	1-572-283-11	SWITCH, SLIDE (POWER)
S510	1-571-787-11	SWITCH, TACTILE (□)
S511	1-571-787-11	SWITCH, TACTILE (▶)
S512	1-571-787-11	SWITCH, TACTILE (DATA SCREEN)
S513	1-571-787-11	SWITCH, TACTILE (FF)
S514	1-571-787-11	SWITCH, TACTILE (◀)
S515	1-571-787-11	SWITCH, TACTILE (▼)
S516	1-571-787-11	SWITCH, TACTILE (REW)

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Ref.No	Part No.	Description	Remark
	*A-7062-081-A	FU-71 BOARD, COMPLETE	(Ref. No. 3000 series)

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Ref.No	Part No.	Description
	*1-535-622-11	PIN, TERMINAL

CAPACITOR

Ref.No	Part No.	Description			
C101	1-124-604-00	ELECT	330MF	20%	10V
C102	1-126-416-11	ELECT	220MF	20%	10V
C103	1-126-805-11	ELECT	33MF	20%	10V
C104	1-124-584-00	ELECT	100MF	20%	10V
C105	1-124-584-00	ELECT	100MF	20%	10V
C106	1-127-561-11	ELECT(SOLID)	33MF	20%	10V
C107	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C108	1-127-558-11	ELECT(SOLID)	10MF	20%	10V
C109	1-127-558-11	ELECT(SOLID)	10MF	20%	10V
C110	1-127-558-11	ELECT(SOLID)	10MF	20%	10V
C111	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C112	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C113	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C114	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C115	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C116	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C117	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C118	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C119	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C120	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C121	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C122	1-127-561-11	ELECT(SOLID)	33MF	20%	10V
C124	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C125	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C126	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C127	1-163-038-00	CERAMIC CHIP	0.1MF		25V

CONNECTOR

Ref.No	Part No.	Description
CN101	1-566-757-11	PIN, CONNECTOR (PC BOARD) 2P
CN102	1-569-557-11	CONNECTOR, BOARD TO BOARD 20P

When indicating parts by reference number, please include the board name.

FU-71 FP-263 CC-33

Ref.No	Part No.	Description				Remark
		DIODE				
D101	8-719-981-59	DIODE FC805				
D102	8-719-981-56	DIODE SB05W05CP				
		FUSE				
F101	⚠.1-532-777-21	FUSE, MICRO (SECONDARY)				
F102	⚠.1-532-778-21	FUSE, MICRO (SECONDARY)				
F103	⚠.1-532-777-21	FUSE, MICRO (SECONDARY)				
		IC				
IC101	8-759-035-98	IC MC141600FU				
		JACK				
J101	1-537-241-11	TERMINAL BOARD (BATTERY)				
		COIL				
L101	1-410-337-11	INDUCTOR	1UH			
L102	1-410-337-11	INDUCTOR	1UH			
L103	1-410-337-11	INDUCTOR	1UH			
L104	1-424-104-11	COIL, CHOKE	10UH			
L105	1-424-104-11	COIL, CHOKE	10UH			
L106	1-424-106-11	COIL, CHOKE	47UH			
L107	1-424-105-11	COIL, CHOKE	22UH			
L108	1-424-106-11	COIL, CHOKE	47UH			
L110	1-412-029-11	INDUCTOR CHIP	10UH			
L111	1-412-029-11	INDUCTOR CHIP	10UH			
L112	1-412-029-11	INDUCTOR CHIP	10UH			
L113	1-412-027-11	INDUCTOR CHIP	2.2UH			
		TRANSISTOR				
Q101	8-729-805-25	TRANSISTOR 2SB1121				
Q102	8-729-822-60	TRANSISTOR 2SB1302-ST				
Q103	8-729-805-25	TRANSISTOR 2SB1121				
		RESISTOR				
R101	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R102	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R103	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R104	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R105	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R106	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R107	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R108	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R109	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R110	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R111	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R112	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R113	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R114	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R115	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R116	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R117	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R118	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
		VARIABLE RESISTOR				
RV101	1-238-088-11	RES, ADJ, CERMET 2.2K				
RV102	1-238-092-11	RES, ADJ CERMET 47K				
		SWITCH				
S101	1-572-284-11	SWITCH, SLIDE (EJECT)				

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Ref.No	Part No.	Description				Remark
	1-634-434-11	FP-263 FLEXIBLE BOARD				
		CAPACITOR				
C951	1-126-154-11	ELECT	47MF	20%	6.3V	
		IC				
IC951	8-741-100-63	IC SBX1619-51				

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Ref.No	Part No.	Description				Remark
	*A-7062-080-A	CC-33 BOARD, COMPLETE				(Ref. No. 6000 series)
	1-634-429-11	FP-258 FLEXIBLE BOARD				
		CAPACITOR				
C901	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V	
C902	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V	
C910	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C911	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C912	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V	
C913	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C914	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C915	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V	
C916	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V	
C917	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C918	1-164-232-11	CERAMIC CHIP	0.01MF		50V	
C919	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C920	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	
C921	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	
C922	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V	
C923	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C924	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C925	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V	
C926	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C927	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C928	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C929	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	
C930	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	
C931	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C932	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C933	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C934	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
		CONNECTOR				
CN901	1-566-529-11	CONNECTOR, FPC (ZIF) 13P				
CN902	1-566-527-11	CONNECTOR, FPC (ZIF) 11P				
		DIODE				
D912	8-719-404-46	DIODE MA110				
D913	8-719-404-46	DIODE MA110				
		IC				
IC910	8-759-990-94	IC MB606199				
IC911	8-752-010-20	IC CX20102				
		COIL				
L910	1-410-658-31	INDUCTOR CHIP	220UH			
L912	1-410-381-11	INDUCTOR CHIP	10UH			
L913	1-410-381-11	INDUCTOR CHIP	10UH			
L914	1-410-381-11	INDUCTOR CHIP	10UH			

When indicating parts by reference number, please include the board name.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q901	8-729-902-93	TRANSISTOR FMG4	
Q912	8-729-901-01	TRANSISTOR DTC144EK	
Q913	8-729-100-66	TRANSISTOR 2SC1623	
Q914	8-729-100-66	TRANSISTOR 2SC1623	
Q915	8-729-100-66	TRANSISTOR 2SC1623	
Q916	8-729-100-66	TRANSISTOR 2SC1623	
Q917	8-729-901-01	TRANSISTOR DTC144EK	
Q918	8-729-162-44	TRANSISTOR 2SB624-BV4	

RESISTOR

Ref.No	Part No.	Description			Remark
R901	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R902	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R905	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R906	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R910	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R916	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R917	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R918	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R919	1-216-295-00	METAL GLAZE	0	5%	1/10W
R920	1-216-295-00	METAL GLAZE	0	5%	1/10W
R921	1-216-295-00	METAL GLAZE	0	5%	1/10W
R923	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R924	1-216-295-00	METAL GLAZE	0	5%	1/10W
R926	1-216-295-00	METAL GLAZE	0	5%	1/10W
R927	1-216-295-00	METAL GLAZE	0	5%	1/10W
R928	1-216-295-00	METAL GLAZE	0	5%	1/10W
R929	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R930	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R931	1-216-645-11	METAL CHIP	560	0.50%	1/10W
R932	1-216-045-00	METAL GLAZE	680	5%	1/10W
R933	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R934	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R935	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R936	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R937	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R938	1-216-029-00	METAL GLAZE	150	5%	1/10W
R939	1-216-041-00	METAL GLAZE	470	5%	1/10W
R940	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R941	1-216-045-00	METAL GLAZE	680	5%	1/10W
R942	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R943	1-216-045-00	METAL GLAZE	680	5%	1/10W
R944	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R945	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R946	1-216-025-00	METAL GLAZE	100	5%	1/10W
R948	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R949	1-216-295-00	METAL GLAZE	0	5%	1/10W
R950	1-216-045-00	METAL GLAZE	680	5%	1/10W
R951	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R953	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R954	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R955	1-216-029-00	METAL GLAZE	150	5%	1/10W
R956	1-216-045-00	METAL GLAZE	680	5%	1/10W
R957	1-216-001-00	METAL GLAZE	10	5%	1/10W
R958	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R959	1-216-047-00	METAL GLAZE	820	5%	1/10W
R960	1-216-047-00	METAL GLAZE	820	5%	1/10W
R962	1-216-295-00	METAL GLAZE	0	5%	1/10W
R963	1-216-295-00	METAL GLAZE	0	5%	1/10W
R964	1-216-295-00	METAL GLAZE	0	5%	1/10W
R965	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R966	1-216-295-00	METAL GLAZE	0	5%	1/10W
R967	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R968	1-216-295-00	METAL GLAZE	0	5%	1/10W
R969	1-216-295-00	METAL GLAZE	0	5%	1/10W
R970	1-216-295-00	METAL GLAZE	0	5%	1/10W
R971	1-216-295-00	METAL GLAZE	0	5%	1/10W
R972	1-216-295-00	METAL GLAZE	0	5%	1/10W
R973	1-216-295-00	METAL GLAZE	0	5%	1/10W
R975	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R976	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R977	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R978	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R979	1-216-295-00	METAL GLAZE	0	5%	1/10W
R983	1-216-295-00	METAL GLAZE	0	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV910	1-238-088-11	RES, ADJ, CERMET 2.2K	

CRYSTAL

Ref.No	Part No.	Description	Remark
X910	1-577-290-21	VIBRATOR, CRYSTAL (11.58MHz)	

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*A-7062-084-A AU-60 BOARD, COMPLETE (Ref. No. 6000 series)

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Ref.No	Part No.	Description	Remark
	8-741-100-97	IC SBX1506-01 (HIC401)	
	1-634-432-11	FP-261 FLEXIBLE BOARD	

CAPACITOR

Ref.No	Part No.	Description			Remark
C401	1-135-202-21	TANTAL. CHIP	22MF	20%	4V
C402	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C403	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C404	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C405	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C406	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C409	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C410	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C411	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C412	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C413	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C414	1-126-209-11	ELECT CHIP	100MF	20%	4V
C415	1-135-202-21	TANTAL. CHIP	22MF	20%	4V
C416	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C418	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C419	1-124-584-00	ELECT	100MF	20%	10V
C420	1-126-207-11	ELECT CHIP	33MF	20%	4V
C421	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C422	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C424	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C425	1-124-584-00	ELECT	100MF	20%	10V
C426	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C427	1-126-207-11	ELECT CHIP	33MF	20%	4V
C428	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C429	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C430	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C431	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C433	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C434	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C435	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C437	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C438	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C439	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C440	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C445	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C448	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C449	1-135-170-21	TANTAL. CHIP	6.8MF	20%	4V
C450	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C451	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C452	1-126-205-11	ELECT CHIP	47MF	20%	6.3V

When indicating parts by reference number, please include the board name.

AU-60

Ref.No	Part No.	Description			Remark
C458	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C459	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C460	1-126-209-11	ELECT CHIP	100MF	20%	4V
C461	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C462	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C463	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C465	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C467	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C468	1-162-965-11	CERAMIC CHIP	0.0015MF	10%	50V
C474	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C475	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C476	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C479	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C480	1-124-967-11	ELECT	10MF	20%	10V
C481	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C482	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C483	1-124-967-11	ELECT	10MF	20%	10V
C484	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C485	1-135-181-21	TANTAL. CHIP	4.7MF	20%	6.3V
C486	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C501	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C503	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C506	1-163-038-00	CERAMIC CHIP	0.1MF		25V

CONNECTOR

CN401	1-565-879-11	PIN, CONNECTOR (PC BOARD) 7P

DIODE

D401	8-719-404-46	DIODE MA110

FILTER

FL401	1-236-550-11	BPF
FL402	1-236-551-11	BPF

IC

IC401	8-752-334-42	IC CXD2106Q
IC402	8-759-009-22	IC MC14094BF

COIL

L401	1-410-389-31	INDUCTOR CHIP	47UH
L403	1-410-389-31	INDUCTOR CHIP	47UH
L404	1-410-389-31	INDUCTOR CHIP	47UH
L405	1-410-389-31	INDUCTOR CHIP	47UH
L407	1-410-381-11	INDUCTOR CHIP	10UH

TRANSISTOR

Q401	8-729-921-58	TRANSISTOR DTA144TU
Q405	8-729-905-18	TRANSISTOR DTC144EU
Q406	8-729-905-12	TRANSISTOR DTA144EU
Q407	8-729-905-18	TRANSISTOR DTC144EU
Q409	8-729-905-35	TRANSISTOR 2SC4081-R
Q410	8-729-905-35	TRANSISTOR 2SC4081-R
Q411	8-729-905-23	TRANSISTOR 2SA1576-R
Q413	8-729-905-35	TRANSISTOR 2SC4081-R
Q414	8-729-905-35	TRANSISTOR 2SC4081-R
Q415	8-729-903-10	TRANSISTOR FMW1
Q416	8-729-905-35	TRANSISTOR 2SC4081-R
Q417	8-729-905-23	TRANSISTOR 2SA1576-R
Q421	8-729-905-35	TRANSISTOR 2SC4081-R
Q426	8-729-905-12	TRANSISTOR DTA144EU
Q427	8-729-905-18	TRANSISTOR DTC144EU
Q433	8-729-905-35	TRANSISTOR 2SC4081-R
Q434	8-729-905-35	TRANSISTOR 2SC4081-R
Q436	8-729-905-12	TRANSISTOR DTA144EU
Q437	8-729-905-35	TRANSISTOR 2SC4081-R

Ref.No	Part No.	Description	Remark
Q501	8-729-905-35	TRANSISTOR 2SC4081-R	
Q502	8-729-905-35	TRANSISTOR 2SC4081-R	

RESISTOR

R404	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R406	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R409	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R410	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R411	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R413	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R415	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R416	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R418	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R419	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R420	1-216-824-11	METAL GLAZE	1.8K	5%	1/16W
R421	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R422	1-216-817-11	METAL GLAZE	470	5%	1/16W
R423	1-216-818-11	METAL GLAZE	560	5%	1/16W
R425	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R426	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R427	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R429	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R430	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R431	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R432	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R433	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R436	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R437	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R441	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R442	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R444	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R445	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R446	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R447	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R448	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R449	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R450	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R451	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R452	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R453	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R455	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R464	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R465	1-216-848-11	METAL GLAZE	180K	5%	1/16W
R471	1-216-864-11	METAL GLAZE	0	5%	1/16W
R473	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R474	1-216-820-11	METAL GLAZE	820	5%	1/16W
R476	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R477	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R478	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R479	1-216-832-11	METAL GLAZE	8.2K	5%	1/16W
R480	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R483	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R484	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R485	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R486	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R487	1-216-864-11	METAL GLAZE	0	5%	1/16W
R488	1-216-864-11	METAL GLAZE	0	5%	1/16W
R489	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R490	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R491	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R492	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R493	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R494	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R495	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R501	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R502	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R503	1-216-848-11	METAL GLAZE 180K 5% 1/16W	
R506	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R507	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R508	1-216-848-11	METAL GLAZE 180K 5% 1/16W	
R511	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R512	1-216-829-11	METAL GLAZE 4.7K 5% 1/16W	
R513	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R514	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R515	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R516	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R517	1-216-833-11	METAL GLAZE 10K 5% 1/16W	
R521	1-216-841-11	METAL GLAZE 47K 5% 1/16W	

TESTPOINT

Ref.No	Part No.	Description	Remark
TP401	*1-535-622-11	PIN, TERMINAL	
TP402	*1-535-622-11	PIN, TERMINAL	

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A-7062-085-A CD-20 BOARD, COMPLETE (Ref. No. 4000 series)

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1-634-435-11 FP-265 FLEXIBLE BOARD
3-744-718-01 HOLDER (10), C

CAPACITOR

Ref.No	Part No.	Description	Remark
C101	1-126-200-11	ELECT CHIP 10MF 20% 35V	
C102	1-162-974-11	CERAMIC CHIP 0.01MF 50V	
C104	1-128-013-11	ELECT CHIP 1MF 20% 50V	
C105	1-126-607-11	ELECT CHIP 47MF 20% 4V	
C107	1-162-964-11	CERAMIC CHIP 0.001MF 10% 50V	
C110	1-126-206-11	ELECT CHIP 100MF 20% 6.3V	
C111	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C112	1-164-005-11	CERAMIC CHIP 0.47MF 25V	
C113	1-128-013-11	ELECT CHIP 1MF 20% 50V	
C114	1-128-008-11	ELECT CHIP 3.3MF 20% 35V	
C115	1-162-970-11	CERAMIC CHIP 0.01MF 10% 25V	
C121	1-162-970-11	CERAMIC CHIP 0.01MF 10% 25V	
C122	1-162-964-11	CERAMIC CHIP 0.001MF 10% 50V	
C123	1-135-177-21	TANTAL. CHIP 1MF 20% 20V	
C124	1-162-970-11	CERAMIC CHIP 0.01MF 10% 25V	
C125	1-126-205-11	ELECT CHIP 47MF 20% 6.3V	
C126	1-164-156-11	CERAMIC CHIP 0.1MF 25V	
C127	1-162-970-11	CERAMIC CHIP 0.01MF 10% 25V	
C128	1-162-964-11	CERAMIC CHIP 0.001MF 10% 50V	
C129	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
C130	1-162-970-11	CERAMIC CHIP 0.01MF 10% 25V	
C131	1-162-638-11	CERAMIC CHIP 1MF 16V	
C133	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C141	1-162-942-11	CERAMIC CHIP 12PF 5% 50V	
C142	1-135-151-21	TANTAL. CHIP 4.7MF 20% 4V	
C144	1-164-156-11	CERAMIC CHIP 0.1MF 25V	
C147	1-164-156-11	CERAMIC CHIP 0.1MF 25V	
C187	1-162-966-11	CERAMIC CHIP 0.0022MF 10% 50V	
C188	1-162-966-11	CERAMIC CHIP 0.0022MF 10% 50V	
C189	1-162-966-11	CERAMIC CHIP 0.0022MF 10% 50V	
C190	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C191	1-135-181-21	TANTAL. CHIP 4.7MF 20% 6.3V	
C192	1-126-100-11	ELECT 10MF 20% 6.3V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN101	*1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	

TRIMMER

Ref.No	Part No.	Description	Remark
CT122	1-141-356-11	CAP, VAR, TRIMMER (CHIP)	

DIODE

Ref.No	Part No.	Description	Remark
D101	8-719-404-46	DIODE MA110	
D102	8-719-404-52	DIODE MA143	
D122	8-719-404-46	DIODE MA110	
D123	8-719-404-46	DIODE MA110	
D124	8-719-404-32	DIODE MA141WA	
D126	8-719-404-46	DIODE MA110	
D127	8-719-404-46	DIODE MA110	
D128	8-719-404-46	DIODE MA110	

IC

Ref.No	Part No.	Description	Remark
IC121	8-752-326-08	IC CXD1159Q	

COIL

Ref.No	Part No.	Description	Remark
L101	1-412-063-21	INDUCTOR CHIP 68UH	
L121	1-412-058-11	INDUCTOR CHIP 10UH	
L122	1-412-058-11	INDUCTOR CHIP 10UH	
L123	1-410-381-11	INDUCTOR CHIP 10UH	
L182	1-412-058-11	INDUCTOR CHIP 10UH	
L183	1-412-052-21	INDUCTOR CHIP 1UH	
L184	1-412-058-11	INDUCTOR CHIP 10UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-105-53	TRANSISTOR 2SK300-3	
Q102	8-729-905-35	TRANSISTOR 2SC4081-R	
Q121	8-729-402-84	TRANSISTOR XN4601	
Q122	8-729-402-78	TRANSISTOR XN6401	
Q123	8-729-402-19	TRANSISTOR XN6501	
Q125	8-729-905-35	TRANSISTOR 2SC4081-R	
Q126	8-729-402-84	TRANSISTOR XN4601	
Q127	8-729-402-84	TRANSISTOR XN4601	
Q129	8-729-905-23	TRANSISTOR 2SA1576-R	
Q131	8-729-402-84	TRANSISTOR XN4601	
Q132	8-729-402-84	TRANSISTOR XN4601	
Q133	8-729-402-84	TRANSISTOR XN4601	
Q135	8-729-402-84	TRANSISTOR XN4601	
Q136	8-729-402-45	TRANSISTOR UN5212	
Q137	8-729-402-84	TRANSISTOR XN4601	

RESISTOR

Ref.No	Part No.	Description	Remark
R101	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R102	1-216-840-11	METAL GLAZE 39K 5% 1/16W	
R103	1-216-820-11	METAL GLAZE 820 5% 1/16W	
R104	1-216-809-11	METAL GLAZE 100 5% 1/16W	
R105	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R108	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R110	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R111	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R112	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R113	1-216-864-11	METAL GLAZE 0 5% 1/16W	
R114	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R115	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R116	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R117	1-216-825-11	METAL GLAZE 2.2K 5% 1/16W	
R118	1-216-813-11	METAL GLAZE 220 5% 1/16W	
R119	1-216-821-11	METAL GLAZE 1K 5% 1/16W	
R120	1-216-813-11	METAL GLAZE 220 5% 1/16W	
R122	1-216-857-11	METAL GLAZE 1M 5% 1/16W	
R124	1-216-839-11	METAL GLAZE 33K 5% 1/16W	
R125	1-216-845-11	METAL GLAZE 100K 5% 1/16W	
R126	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R127	1-216-820-11	METAL GLAZE 820 5% 1/16W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R128	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R129	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R130	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R131	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R132	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R133	1-216-850-11	METAL GLAZE	270K	5%	1/16W	
R136	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R138	1-216-836-11	METAL GLAZE	18K	5%	1/16W	
R139	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R140	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R141	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R142	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R143	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R144	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R145	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R148	1-216-848-11	METAL GLAZE	180K	5%	1/16W	
R149	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R153	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R156	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R165	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R166	1-216-836-11	METAL GLAZE	18K	5%	1/16W	
R167	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W	
R168	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R170	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R171	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R172	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R173	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R181	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R182	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R183	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R184	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R186	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R187	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R188	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R189	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R190	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R191	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R192	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R193	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R194	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R195	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R196	1-216-813-11	METAL GLAZE	220	5%	1/16W	
R197	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R198	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R199	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R200	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R201	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R202	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R203	1-216-681-11	METAL CHIP	18K	0.50%	1/10W	
R204	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R205	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R206	1-216-681-11	METAL CHIP	18K	0.50%	1/10W	
R207	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R208	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R209	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R210	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R215	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R216	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R217	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R218	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R219	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R220	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R221	1-216-840-11	METAL GLAZE	39K	5%	1/16W	
R222	1-215-833-11	METAL GLAZE	10K	5%	1/16W	
R226	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R229	1-216-864-11	METAL GLAZE	0	5%	1/16W	
R230	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R233	1-216-838-11	METAL GLAZE	27K	5%	1/16W	
R234	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R235	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R236	1-216-833-11	METAL GLAZE	10K	5%	1/16W	

CRYSTAL

X121	1-579-042-11	VIBRATOR, CRYSTAL (28MHz)

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* A-7062-087-A AF-54 BOARD, COMPLETE (Ref. No. 3000 series)
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1-634-436-11 FP-266 FLEXIBLE BOARD

CAPACITOR

C801	1-163-059-00	CERAMIC CHIP	0.01MF		50V
C802	1-163-059-00	CERAMIC CHIP	0.01MF		50V
C803	1-163-059-00	CERAMIC CHIP	0.01MF		50V
C804	1-164-634-11	CERAMIC CHIP	1MF		16V
C805	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C806	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C807	1-162-966-11	CERAMIC CHIP	0.0022MF	10%	50V
C808	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C810	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C811	1-162-966-11	CERAMIC CHIP	0.0022MF	10%	50V
C812	1-162-966-11	CERAMIC CHIP	0.0022MF	10%	50V
C813	1-162-966-11	CERAMIC CHIP	0.0022MF	10%	50V
C814	1-162-966-11	CERAMIC CHIP	0.0022MF	10%	50V
C815	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C816	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C817	1-164-634-11	CERAMIC CHIP	1MF		16V
C818	1-164-634-11	CERAMIC CHIP	1MF		16V
C819	1-135-177-21	TANTAL. CHIP	1MF	20%	20V
C820	1-164-634-11	CERAMIC CHIP	1MF		16V
C821	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C822	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C823	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C824	1-164-634-11	CERAMIC CHIP	1MF		16V
C825	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C826	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C827	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C829	1-164-634-11	CERAMIC CHIP	1MF		16V
C831	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C832	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C833	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C834	1-135-180-21	TANTAL. CHIP	3.3MF	20%	6.3V
C835	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C837	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C839	1-135-177-21	TANTAL. CHIP	1MF	20%	20V

CONNECTOR

CN801	* 1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P

DIODE

D801	8-719-404-46	DIODE MA110

FILTER

FL851	1-236-209-11	FILTER, LOW PASS
FL852	1-236-209-11	FILTER, LOW PASS

When indicating parts by reference number, please include the board name.

IC

Ref.No	Part No.	Description	Remark
IC801	8-752-334-68	IC CXD1205R	
IC802	8-759-148-87	IC CXA8016M	
IC803	8-759-329-47	IC CXD1172AM	
IC804	8-759-998-96	IC LM324DR	
IC805	8-759-998-96	IC LM324DR	

COIL

L801	1-410-655-31	INDUCTOR CHIP	120UH

TRANSISTOR

Q801	8-729-905-35	TRANSISTOR 2SC4081-R
Q802	8-729-905-35	TRANSISTOR 2SC4081-R
Q806	8-729-905-35	TRANSISTOR 2SC4081-R
Q807	8-729-905-35	TRANSISTOR 2SC4081-R
Q808	8-729-905-35	TRANSISTOR 2SC4081-R
Q809	8-729-402-45	TRANSISTOR UN5212

RESISTOR

R801	1-216-679-11	METAL CHIP	15K	0.50%	1/10W
R802	1-216-679-11	METAL CHIP	15K	0.50%	1/10W
R803	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R804	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R805	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R806	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R807	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R808	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R809	1-216-134-00	METAL GLAZE	2.2	5%	1/8W
R810	1-216-144-00	METAL GLAZE	5.6	5%	1/8W
R811	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R819	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R820	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R821	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R822	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R823	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R827	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R828	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R829	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R830	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R831	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R832	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R833	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R834	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R835	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R836	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R837	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W
R838	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R839	1-216-673-11	METAL CHIP	8.2K	0.50%	1/10W
R840	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R841	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R842	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R843	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R844	1-216-819-11	METAL GLAZE	680	5%	1/16W
R845	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R846	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R847	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R848	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W
R849	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R850	1-216-818-11	METAL GLAZE	560	5%	1/16W
R851	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R852	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R853	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R854	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R858	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R860	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R862	1-216-679-11	METAL CHIP	15K	0.50%	1/10W
R863	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R865	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R866	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R867	1-216-635-11	METAL CHIP	220	0.50%	1/10W
R868	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W

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***A-7062-089-A MC-43 BOARD, COMPLETE** (Ref. No. 6000 series)

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CAPACITOR

C801	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C802	1-162-587-11	CERAMIC CHIP	0.039MF	10%	25V
C803	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C804	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C805	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C806	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C807	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C808	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C809	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C810	1-162-587-11	CERAMIC CHIP	0.039MF	10%	25V
C811	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C812	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C813	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C814	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C815	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C816	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C817	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C820	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C821	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C822	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C823	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C824	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C825	1-164-633-11	CERAMIC CHIP	0.1MF	10%	25V
C826	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C827	1-126-206-11	ELECT CHIP	100MF	20%	6.3V
C828	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C829	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C830	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C834	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C835	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C836	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C838	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C839	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C840	1-162-968-11	CERAMIC CHIP	0.0047MF	10%	50V
C841	1-162-968-11	CERAMIC CHIP	0.0047MF	10%	50V

CONNECTOR

CN802	1-568-364-21	CONNECTOR, BOARD TO BOARD 12P

IC

IC801	8-759-111-46	IC UPC4572G2

TRANSISTOR

Q801	8-729-109-44	TRANSISTOR 2SK94
Q802	8-729-905-35	TRANSISTOR 2SC4081-R
Q803	8-729-905-12	TRANSISTOR DTA144EU
Q804	8-729-905-23	TRANSISTOR 2SA1576-R
Q805	8-729-905-35	TRANSISTOR 2SC4081-R
Q806	8-729-109-44	TRANSISTOR 2SK94
Q807	8-729-905-35	TRANSISTOR 2SC4081-R
Q808	8-729-905-12	TRANSISTOR DTA144EU

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
Q809	8-729-905-23	TRANSISTOR 2SA1576-R				
Q810	8-729-905-35	TRANSISTOR 2SC4081-R				
Q811	8-729-905-12	TRANSISTOR DTA144EU				
Q812	8-729-905-35	TRANSISTOR 2SC4081-R				
Q813	8-729-904-07	TRANSISTOR FMG2				
Q815	8-729-905-35	TRANSISTOR 2SC4081-R				
Q816	8-729-905-23	TRANSISTOR 2SA1576-R				
Q817	8-729-905-35	TRANSISTOR 2SC4081-R				

RESISTOR

Ref.No	Part No.	Description				Remark
R802	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R803	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R804	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R805	1-216-849-11	METAL GLAZE	220K	5%	1/16W	
R806	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R807	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R808	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R810	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R811	1-216-857-11	METAL GLAZE	1M	5%	1/16W	
R812	1-216-844-11	METAL GLAZE	82K	5%	1/16W	
R813	1-216-849-11	METAL GLAZE	220K	5%	1/16W	
R814	1-216-835-11	METAL GLAZE	15K	5%	1/16W	
R815	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W	
R816	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W	
R817	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R818	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R819	1-216-833-11	METAL GLAZE	10K	5%	1/16W	
R820	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W	
R821	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W	
R822	1-216-846-11	METAL GLAZE	120K	5%	1/16W	
R823	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R824	1-216-839-11	METAL GLAZE	33K	5%	1/16W	
R825	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R826	1-216-846-11	METAL GLAZE	120K	5%	1/16W	
R827	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W	
R828	1-216-839-11	METAL GLAZE	33K	5%	1/16W	
R829	1-216-843-11	METAL GLAZE	68K	5%	1/16W	
R830	1-216-837-11	METAL GLAZE	22K	5%	1/16W	
R831	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R832	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R833	1-216-842-11	METAL GLAZE	56K	5%	1/16W	
R834	1-216-845-11	METAL GLAZE	100K	5%	1/16W	
R835	1-216-841-11	METAL GLAZE	47K	5%	1/16W	
R837	1-216-821-11	METAL GLAZE	1K	5%	1/16W	
R838	1-216-836-11	METAL GLAZE	18K	5%	1/16W	
R839	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W	
R840	1-216-306-11	METAL GLAZE	3.9	5%	1/10W	
R841	1-216-810-11	METAL GLAZE	120	5%	1/16W	
R842	1-216-810-11	METAL GLAZE	120	5%	1/16W	

SWITCH

Ref.No	Part No.	Description	Remark
SW801	1-570-870-11	SWITCH, SLIDE (BUILT IN MIC)	

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* A-7062-124-A VF-26 BOARD, COMPLETE (Ref. No. 8000 series)
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Ref.No	Part No.	Description	Remark
	1-575-846-11	CONNECTOR, FPC (NON ZIF) 6P	

CAPACITOR

Ref.No	Part No.	Description				Remark
C901	1-126-369-11	ELECT	220MF	20%	6.3V	
C902	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C904	1-127-515-11	ELECT(SOLID)	47MF	20%	6.3V	
C905	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C906	1-163-115-00	CERAMIC CHIP	82PF	5%	50V	
C907	⚠ 1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V	
C908	⚠ 1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V	
C909	1-126-193-11	ELECT CHIP	1MF	20%	50V	
C911	1-131-388-00	TANTALUM	68MF	10%	3.15V	
C912	1-102-038-00	CERAMIC	0.001MF		500V	
C913	1-163-033-00	CERAMIC CHIP	0.022MF		50V	
C915	1-126-193-11	ELECT CHIP	1MF	20%	50V	
C916	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C917	1-135-166-21	TANTAL. CHIP	47MF	20%	6.3V	
C918	1-162-638-11	CERAMIC CHIP	1MF		16V	
C919	1-135-070-00	TANTAL. CHIP	0.1MF	10%	35V	
C920	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN901	* 1-566-195-21	PIN, CONNECTOR (PC BOARD) 2P	
CN902	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	

COMBINATION PARTS

Ref.No	Part No.	Description	Remark
CP901	1-238-119-11	RES, ADJ	

CRT

Ref.No	Part No.	Description	Remark
CRT901	1-526-978-21	SOCKET ASSY, CRT	

DIODE

Ref.No	Part No.	Description	Remark
D670	8-719-404-46	DIODE MA110	
D903	8-719-400-20	DIODE MA152WA	
D955	8-719-404-19	DIODE LN1251C	

IC

Ref.No	Part No.	Description	Remark
IC901	8-759-420-01	IC AN2512S	

COIL

Ref.No	Part No.	Description		Remark
L901	1-410-645-31	INDUCTOR	100UH	
L902	1-410-385-11	INDUCTOR CHIP	22UH	
L903	⚠ 1-459-858-11	COIL, FERRITE (HLC)		

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q902	⚠ 8-729-402-31	TRANSISTOR 2SD1819A-Q	
Q903	8-729-106-68	TRANSISTOR 2SD1615-AGP	
Q904	8-729-216-31	TRANSISTOR 2SA1163G	

RESISTOR

Ref.No	Part No.	Description				Remark
R902	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R903	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R904	⚠ 1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R906	⚠ 1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R907	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R908	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R911	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R914	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R915	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R916	1-216-125-00	METAL GLAZE	1.5M	5%	1/10W	
R917	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R919	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R920	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R921	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R922	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R923	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R924	1-216-306-11	METAL GLAZE	3.9	5%	1/10W	
R925	1-216-336-11	METAL GLAZE	47K	1%	1/10W	
R926	1-218-163-11	METAL GLAZE	120K	1%	1/10W	
R928	1-216-870-11	METAL GLAZE	180K	1%	1/10W	
R929	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description			Remark
R930	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R931	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R950	1-216-041-00	METAL GLAZE	470	5%	1/10W
R951	1-216-311-00	METAL GLAZE	6.8	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV901	1-238-647-11	RES, ADJ, METAL GLAZE 4.7M

TRANSFORMER

Ref.No	Part No.	Description
T901	⚠.1-439-428-11	TRANSFORMER ASSY, FLYBACK

THERMISTOR

Ref.No	Part No.	Description
TH901	1-807-938-11	THERMISTOR

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*A-7062-125-A VF-27 BOARD, COMPLETE (Ref. No. 9000.series)

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Ref.No	Part No.	Description
	1-575-846-11	CONNECTOR, FPC (NON ZIF) 6P

CAPACITOR

Ref.No	Part No.	Description			Remark
C901	1-124-442-00	ELECT	330MF	20%	6.3V
C903	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C904	1-126-160-11	ELECT	1MF	20%	50V
C905	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C906	1-131-381-00	TANTALUM	47MF	10%	6.3V
C907	1-162-638-11	CERAMIC CHIP	1MF		16V
C908	1-136-165-00	FILM	0.1MF	5%	50V
C909	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C910	1-124-587-11	ELECT	220MF	20%	6.3V
C911	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C912	⚠.1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V
C913	⚠.1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V
C914	⚠.1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V
C915	1-126-090-11	ELECT	82MF	20%	10V
C916	1-126-163-11	ELECT	4.7MF	20%	50V
C918	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C919	1-102-038-00	CERAMIC	0.001MF		500V

CONNECTOR

Ref.No	Part No.	Description
CN902	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P
CN903	* 1-566-195-21	PIN, CONNECTOR (PC BOARD) 2P

DIODE

Ref.No	Part No.	Description
D903	8-719-400-20	DIODE MA152WA
D955	8-719-404-21	DIODE LN1251C

IC

Ref.No	Part No.	Description
IC901	8-759-420-01	IC AN2512S

COIL

Ref.No	Part No.	Description	
L901	1-410-831-21	INDUCTOR	82UH
L902	1-408-977-21	INDUCTOR	39UH
L903	⚠.1-459-858-11	COIL, FERRITE (HLC)	

TRANSISTOR

Ref.No	Part No.	Description
Q902	⚠.8-729-100-66	TRANSISTOR 2SC1623-L6
Q903	8-729-216-31	TRANSISTOR 2SA1163G
Q904	8-729-100-66	TRANSISTOR 2SC1623
Q905	8-729-106-68	TRANSISTOR 2SD1615-AGP

RESISTOR

Ref.No	Part No.	Description			Remark
R901	⚠.1-216-073-00	METAL GLAZE	10K	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R903	1-216-041-00	METAL GLAZE	470	5%	1/10W
R904	⚠.1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R905	1-216-007-00	METAL GLAZE	18	5%	1/10W
R906	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R908	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R909	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R910	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R911	1-216-013-00	METAL GLAZE	33	5%	1/10W
R912	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R913	1-218-163-11	METAL GLAZE	120K	1%	1/10W
R914	1-216-025-00	METAL GLAZE	100	5%	1/10W
R915	1-216-306-11	METAL GLAZE	3.9	5%	1/10W
R917	1-216-045-00	METAL GLAZE	680	5%	1/10W
R918	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R919	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R920	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R921	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R922	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R923	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R924	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W
R925	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W
R926	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R928	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R933	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R950	1-216-041-00	METAL GLAZE	470	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV901	1-230-873-11	RES, ADJ, METAL GLAZE 47K
RV902	1-230-866-11	RES, ADJ, METAL GLAZE 470
RV903	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K
RV904	1-228-762-00	RES, ADJ, METAL GLAZE 1M

TRANSFORMER

Ref.No	Part No.	Description
T901	⚠.1-439-431-11	TRANSFORMER ASSY, FLYBACK

THERMISTOR

Ref.No	Part No.	Description
TH901	1-807-938-11	THERMISTOR

CRT

Ref.No	Part No.	Description
W901	1-540-019-21	SOCKET ASSY, CRT

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*A-7062-170-A FD-15 BOARD, COMPLETE (Ref. No. 5000 series)

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Ref.No	Part No.	Description
	3-744-736-01	HOLDER, TALLY
	3-744-737-01	TERMINAL (A), L
	3-744-738-01	TERMINAL (B), L
	3-744-761-01	HOLDER, LCD
	3-746-207-01	COVER, LITIUM

CAPACITOR

Ref.No	Part No.	Description			Remark
C201	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C202	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C203	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C204	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C205	1-162-971-11	CERAMIC CHIP	0.001MF		50V
C206	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C207	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C208	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C209	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C210	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C211	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C212	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C213	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

FD-15

Ref.No	Part No.	Description			Remark
C214	1-162-971-11	CERAMIC CHIP	0.001MF		50V
C215	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C216	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C217	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C218	1-164-227-11	CERAMIC CHIP	0.022MF	10%	25V
C221	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C222	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C223	1-135-215-21	TANTAL. CHIP	6.8MF	20%	16V
C230	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C231	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C300	1-135-145-11	TANTAL. CHIP	0.47MF	20%	25V
C301	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C302	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C303	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C304	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C309	1-135-145-11	TANTAL. CHIP	0.47MF	20%	25V
C310	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C311	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C312	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C313	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C332	1-135-157-21	TANTAL. CHIP	10MF	20%	6.3V
C333	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C334	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C335	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C336	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C337	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V
C338	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C339	1-135-145-11	TANTAL. CHIP	0.47MF	20%	25V
C340	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C341	1-164-227-11	CERAMIC CHIP	0.022MF	10%	25V
C342	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C343	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C344	1-164-227-11	CERAMIC CHIP	0.022MF	10%	25V
C345	1-162-995-11	CERAMIC CHIP	0.022MF		50V
C346	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C347	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C348	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C349	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C350	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C351	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C352	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C353	1-162-638-11	CERAMIC CHIP	1MF		16V
C354	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C355	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C356	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C357	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C361	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C370	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C371	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C372	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V

CONNECTOR

CN201	1-569-035-11	CONNECTOR, FPC (ZIF) 30P

TRIMMER

CT201	1-141-331-11	CAP, VAR, TRIMMER (CHIP)
CT301	1-141-331-11	CAP, VAR, TRIMMER (CHIP)
CT302	1-141-331-11	CAP, VAR, TRIMMER (CHIP)

DIODE

D201	8-719-940-45	DIODE DWA010
D202	8-719-404-46	DIODE MA110
D203	8-719-938-72	DIODE SB01-05CP
D204	8-719-420-36	DIODE MA151A
D205	8-719-404-46	DIODE MA110
D206	8-719-812-41	DIODE DWA010

IC

IC201	8-759-150-52	IC UPD75316GF-051
IC202	8-759-999-02	IC TL1596CDSB
IC203	8-759-145-63	IC UPD7564G-540
IC205	8-759-937-54	IC S-81250HG-RD
IC206	8-759-937-56	IC S-8054ALB-LMS
IC301	8-759-998-30	IC CF79028PG
IC302	8-759-632-36	IC M5M5256BFP
IC303	8-752-039-49	IC CXA1393AN
IC304	8-759-634-47	IC M51285BGP

COIL

L201	1-412-058-11	INDUCTOR CHIP	10UH
L202	1-410-393-11	INDUCTOR CHIP	100UH
L300	1-412-058-11	INDUCTOR CHIP	10UH
L301	1-412-187-11	INDUCTOR	18UH
L302	1-410-377-31	INDUCTOR CHIP	4.7UH
L310	1-410-377-31	INDUCTOR CHIP	4.7UH
L311	1-410-393-11	INDUCTOR CHIP	100UH

INDICATOR TUBE

ND201	1-808-990-21	DISPLAY PANEL, LIQUID CRYSTAL

TRANSISTOR

Q201	8-729-904-20	TRANSISTOR FMA2
Q202	8-729-905-18	TRANSISTOR DTC144EU
Q203	8-729-905-23	TRANSISTOR 2SA1576-R
Q204	8-729-905-15	TRANSISTOR DTC144WU
Q205	8-729-109-44	TRANSISTOR 2SK94
Q206	8-729-402-78	TRANSISTOR XN6401
Q207	8-729-402-19	TRANSISTOR XN6501
Q208	8-729-402-78	TRANSISTOR XN6401
Q209	8-729-403-10	TRANSISTOR XN6215
Q210	8-729-905-XX	TRANSISTOR DTC114TU
Q211	8-729-100-66	TRANSISTOR 2SC1623
Q212	8-729-905-XX	TRANSISTOR DTC114TU
Q213	8-729-905-18	TRANSISTOR DTC144EU
Q214	8-729-905-12	TRANSISTOR DTA144EU
Q301	8-729-925-91	TRANSISTOR DTC115EU
Q311	8-729-905-35	TRANSISTOR 2SC4081-R
Q312	8-729-905-35	TRANSISTOR 2SC4081-R
Q313	8-729-905-18	TRANSISTOR DTC144EU
Q314	8-729-905-35	TRANSISTOR 2SC4081-R
Q315	8-729-905-18	TRANSISTOR DTC144EU
Q317	8-729-905-23	TRANSISTOR 2SA1576-R

RESISTOR

R201	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R202	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R203	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R204	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R207	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R208	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R209	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R210	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R219	1-216-864-11	METAL GLAZE	0	5%	1/16W
R220	1-216-819-11	METAL GLAZE	680	5%	1/16W
R221	1-216-809-11	METAL GLAZE	100	5%	1/16W
R222	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R223	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R224	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R225	1-216-851-11	METAL GLAZE	330K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R242	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R244	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R245	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R246	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R247	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R248	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R249	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R250	1-216-596-11	METAL GLAZE	2.7K	1%	1/10W
R251	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R252	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R253	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R254	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R255	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R256	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R257	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R258	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R266	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R267	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R269	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R270	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R271	1-216-861-11	METAL GLAZE	2.2M	5%	1/16W
R272	1-216-809-11	METAL GLAZE	100	5%	1/16W
R273	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R274	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R275	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R276	1-216-851-11	METAL GLAZE	330K	5%	1/16W
R277	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R278	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R279	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R280	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R281	1-216-852-11	METAL GLAZE	390K	5%	1/16W
R282	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R283	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R284	1-216-855-11	METAL GLAZE	680K	5%	1/16W
R285	1-216-855-11	METAL GLAZE	680K	5%	1/16W
R286	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R287	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R288	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R289	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R290	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R295	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R296	1-216-814-11	METAL GLAZE	270	5%	1/16W
R297	1-216-814-11	METAL GLAZE	270	5%	1/16W
R300	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R304	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R306	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R308	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R311	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R312	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R320	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R321	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R322	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R324	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R331	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R332	1-216-814-11	METAL GLAZE	270	5%	1/16W
R333	1-216-806-11	METAL GLAZE	56	5%	1/16W
R334	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R335	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R337	1-216-864-11	METAL GLAZE	0	5%	1/16W
R339	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R340	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R341	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R342	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R343	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R344	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W

Ref.No	Part No.	Description			Remark
R345	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R346	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R347	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R348	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R349	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R350	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R351	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R352	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R356	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R357	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R358	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R359	1-216-831-11	METAL GLAZE	6.8K	5%	1/16W
R360	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R361	1-216-817-11	METAL GLAZE	470	5%	1/16W
R364	1-216-815-11	METAL GLAZE	330	5%	1/16W
R365	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R366	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W

NETWORK

RB201	1-236-412-11	NETWORK, RES 1.0K
RB202	1-236-424-11	NETWORK, RES 10K
RB203	1-236-424-11	NETWORK, RES 10K
RB204	1-236-424-11	NETWORK, RES 10K
RB205	1-236-412-11	NETWORK, RES 1.0K
RB208	1-236-424-11	NETWORK, RES 10K
RB209	1-236-436-11	NETWORK, RES 100K
RB210	1-236-436-11	NETWORK, RES 100K
RB211	1-236-412-11	NETWORK, RES 1.0K
RB212	1-236-424-11	NETWORK, RES 10K
RB213	1-236-424-11	NETWORK, RES 10K
RB214	1-236-436-11	NETWORK, RES 100K
RB215	1-236-436-11	NETWORK, RES 100K

VARIABLE RESISTOR

RV301	1-238-089-11	RES, ADJ CERMET 4.7K
RV302	1-238-092-11	RES, ADJ CERMET 47K

SWITCH

S201	1-571-684-11	SWITCH, TACTIL (IRIS)
S202	1-571-684-11	SWITCH, TACTIL (TITLE 1)
S203	1-571-684-11	SWITCH, TACTIL (TITLE 2)
S204	1-571-684-11	SWITCH, TACTIL (MEMORY)
S205	1-571-684-11	SWITCH, TACTIL (COLOR/MODE)
S206	1-571-684-11	SWITCH, TACTIL (DATE (+))
S207	1-571-684-11	SWITCH, TACTIL (TIME NEXT)
S208	1-571-684-11	SWITCH, TACTIL (PROGRAM AE)
S209	1-571-684-11	SWITCH, TACTIL (WHT BAL)
S210	1-572-319-11	SWITCH, ROTARY (CONTROL)
S211	1-571-684-11	SWITCH, TACTIL (GAIN)
S212	1-571-684-11	SWITCH, TACTIL (FOCUS)
S213	1-571-684-11	SWITCH, TACTIL (PUSH AUTO)
S215	1-571-684-11	SWITCH, TACTIL (SHUTTER SPEED)
S216	1-571-684-11	SWITCH, TACTIL (◺■◿)
S217	1-572-285-11	SWITCH, SLIDE (AUTO LOCK)
S218	1-571-684-11	SWITCH, TACTIL (FADER)

THERMISTOR

TH300	1-800-200-00	THERMISTOR

CRYSTAL

X201	1-527-997-21	VIBRATOR, CRYSTAL (32.77kHz)
X202	1-578-713-21	VIBLATOR, CERAMIC (4.19MHz)
X203	1-577-163-21	VIBLATOR, CERAMIC (700kHz)
X301	1-567-900-11	VIBRATOR, CRYSTAL (14.318MHz)

When indicating parts by reference number, please include the board name.

VC-67

Ref.No	Part No.	Description			Remark
	* A-7062-296-A	VC-67 BOARD, COMPLETE			(Ref. No. 4000 series)
	A-7068-163-A	MX-12 BOARD, COMPLETE (HIC)			
	3-744-763-01	CASE, SHIELD, VC			

CAPACITOR

Ref.No	Part No.	Description			Remark
C301	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C302	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C401	1-164-634-11	CERAMIC CHIP	1MF		16V
C402	1-164-634-11	CERAMIC CHIP	1MF		16V
C403	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C404	1-164-634-11	CERAMIC CHIP	1MF		16V
C406	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C407	1-164-634-11	CERAMIC CHIP	1MF		16V
C408	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C409	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C410	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C411	1-124-566-11	ELECT	120MF	20%	6.3V
C412	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C413	1-164-634-11	CERAMIC CHIP	1MF		16V
C414	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C415	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C416	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C417	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C419	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C420	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C501	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C502	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C503	1-164-634-11	CERAMIC CHIP	1MF		16V
C506	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C507	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C508	1-135-072-21	TANTAL. CHIP	0.22MF	20%	35V
C509	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C510	1-128-004-11	ELECT CHIP	10MF	20%	16V
C511	1-135-180-21	TANTAL. CHIP	3.3MF	20%	6.3V
C512	1-135-180-21	TANTAL. CHIP	3.3MF	20%	6.3V
C513	1-135-180-21	TANTAL. CHIP	3.3MF	20%	6.3V
C514	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C517	1-135-177-21	TANTAL. CHIP	1MF	20%	20V
C518	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C519	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C520	1-135-071-21	TANTAL. CHIP	0.15MF	10%	35V
C521	1-135-177-21	TANTAL. CHIP	1MF	20%	20V
C651	1-126-217-11	ELECT CHIP	15MF	20%	10V
C654	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C655	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C656	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C657	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C658	1-128-004-11	ELECT CHIP	10MF	20%	16V
C659	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C660	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C661	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C662	1-162-964-11	CERAMIC CHIP	0.001MF	10%	50V
C663	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C664	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C665	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C666	1-162-974-11	CERAMIC CHIP	0.01MF		50V
C667	1-164-156-11	CERAMIC CHIP	0.1MF		25V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN301	1-568-338-11	CONNECTOR, BOARD TO BOARD 24P	
CN302	1-568-331-11	CONNECTOR, BOARD TO BOARD 10P	
CN303	1-566-533-11	CONNECTOR, FPC (ZIF) 17P	
CN304	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P	
CN305	1-566-528-21	CONNECTOR, FPC (ZIF) 12P	
CN306	* 1-565-875-11	PIN, CONNECTOR (PC BOARD) 3P	
CN307	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
CN651	* 1-566-187-11	PIN, CONNECTOR (PC BOARD) 8P	
CN652	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN653	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN654	* 1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
CN655	1-565-530-11	PIN, CONNECTOR (PC BOARD) 5P	

DIODE

Ref.No	Part No.	Description	Remark
D501	8-719-404-46	DIODE MA110	
D502	8-719-404-46	DIODE MA110	
D503	8-719-404-46	DIODE MA110	
D504	8-719-404-46	DIODE MA110	

FILTER

Ref.No	Part No.	Description	Remark
FL301	1-236-759-21	FILTER, LOW PASS (TRAP)	
FL302	1-415-731-21	DELAY LINE, LC (YH)	
FL303	1-415-732-21	DELAY LINE, LC (200NS)	
FL401	1-415-763-21	DELAY LINE, LC	
FL402	1-415-730-21	DELAY LINE, LC (100NS)	

IC

Ref.No	Part No.	Description	Remark
IC301	8-759-946-00	IC MB88341PFV	
IC401	8-752-038-XX	IC CXA1392R	
IC501	8-759-037-46	IC MC68HC11E9FU	
IC502	8-759-008-95	IC MC14028BF	
IC504	8-759-946-00	IC MB88341PFV	
IC505	8-759-100-95	IC UPC324G2	
IC507	8-759-030-74	IC SC14S66FER	
IC508	8-759-937-56	IC S-8054ALB-LM-S	
IC509	8-759-932-54	IC MC14066BF	
IC510	8-759-100-95	IC UPC324G2	
IC651	8-759-981-82	IC RC3414M	
IC652	8-759-037-20	IC MPC1737MR	
IC653	8-759-998-98	IC LM358DR	
IC655	8-759-009-07	IC MC14053BF	
IC656	8-759-100-95	IC UPC324G2	

COIL

Ref.No	Part No.	Description	Remark
L401	1-410-391-11	INDUCTOR CHIP 68UH	
L502	1-412-058-11	INDUCTOR CHIP 10UH	
L503	1-412-062-11	INDUCTOR CHIP 47UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q301	8-729-905-23	TRANSISTOR 2SA1576-R	
Q302	8-729-905-23	TRANSISTOR 2SA1576-R	
Q303	8-729-402-84	TRANSISTOR XN4601	
Q402	8-729-402-84	TRANSISTOR XN4601	
Q403	8-729-905-23	TRANSISTOR 2SA1576-R	
Q404	8-729-905-35	TRANSISTOR 2SC4081-R	
Q501	8-729-420-50	TRANSISTOR UN5215	
Q502	8-729-420-50	TRANSISTOR UN5215	
Q503	8-729-420-50	TRANSISTOR UN5215	
Q504	8-729-403-10	TRANSISTOR XN6215	
Q505	8-729-403-10	TRANSISTOR XN6215	
Q506	8-729-420-07	TRANSISTOR XN6213	
Q507	8-729-420-50	TRANSISTOR UN5215	
Q508	8-729-402-78	TRANSISTOR XN6401	
Q509	8-729-403-10	TRANSISTOR XN6215	
Q510	8-729-905-35	TRANSISTOR 2SC4081-R	
Q513	8-729-402-84	TRANSISTOR XN4601	
Q514	8-729-905-35	TRANSISTOR 2SC4081-R	
Q515	8-729-402-84	TRANSISTOR XN4601	
Q516	8-729-905-35	TRANSISTOR 2SC4081-R	
Q517	8-729-905-23	TRANSISTOR 2SA1576-R	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
Q651	8-729-905-23	TRANSISTOR 2SA1576-R			
Q652	8-729-402-42	TRANSISTOR UN5213			
Q653	8-759-903-48	TRANSISTOR 2SB1132-R			
Q654	8-729-905-35	TRANSISTOR 2SC4081-R			
Q655	8-729-905-35	TRANSISTOR 2SC4081-R			
Q656	8-729-905-35	TRANSISTOR 2SC4081-R			
Q657	8-729-402-84	TRANSISTOR XN4601			
Q658	8-729-402-84	TRANSISTOR XN4601			

RESISTOR

Ref.No	Part No.	Description			Remark
R301	1-216-864-11	METAL GLAZE	0	5%	1/16W
R302	1-216-820-11	METAL GLAZE	820	5%	1/16W
R304	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R307	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R311	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R312	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R313	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R314	1-216-864-11	METAL GLAZE	0	5%	1/16W
R316	1-216-864-11	METAL GLAZE	0	5%	1/16W
R318	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R321	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R322	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R325	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R327	1-216-864-11	METAL GLAZE	0	5%	1/16W
R328	1-216-864-11	METAL GLAZE	0	5%	1/16W
R401	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R403	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R404	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R406	1-216-864-11	METAL GLAZE	0	5%	1/16W
R408	1-216-864-11	METAL GLAZE	0	5%	1/16W
R409	1-216-864-11	METAL GLAZE	0	5%	1/16W
R411	1-216-864-11	METAL GLAZE	0	5%	1/16W
R414	1-216-864-11	METAL GLAZE	0	5%	1/16W
R415	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R416	1-216-817-11	METAL GLAZE	470	5%	1/16W
R417	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R418	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R419	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R420	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R421	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R427	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R428	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R429	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R432	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R437	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R440	1-216-295-00	METAL GLAZE	0	5%	1/10W
R501	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R502	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R503	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R504	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R506	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R508	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R509	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R510	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R511	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R513	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R514	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R515	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R517	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R518	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R519	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R520	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R521	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R522	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R523	1-216-840-11	METAL GLAZE	39K	5%	1/16W
R524	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R525	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R526	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R527	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R528	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R529	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R530	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R531	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R532	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R533	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R534	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R535	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R536	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R537	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R546	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R547	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R550	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R551	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R552	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R553	1-216-685-11	METAL CHIP	27K	0.50%	1/10W
R554	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R555	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R556	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R557	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R560	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R562	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R649	1-216-309-00	METAL GLAZE	5.6	5%	1/10W
R650	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R652	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R653	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R654	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R655	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R656	1-216-134-00	METAL GLAZE	2.2	5%	1/8W
R657	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R658	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R659	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R660	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R661	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R662	1-216-815-11	METAL GLAZE	330	5%	1/16W
R663	1-216-864-11	METAL GLAZE	0	5%	1/16W
R664	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R665	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R666	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R667	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R668	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R669	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R670	1-216-807-11	METAL GLAZE	68	5%	1/16W
R672	1-216-864-11	METAL GLAZE	0	5%	1/16W
R676	1-216-864-11	METAL GLAZE	0	5%	1/16W
R678	1-216-864-11	METAL GLAZE	0	5%	1/16W
R679	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R680	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R681	1-216-817-11	METAL GLAZE	470	5%	1/16W
R682	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R683	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R684	1-216-823-11	METAL GLAZE	1.5K	5%	1/16W
R685	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R686	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R687	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R688	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R689	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R690	1-216-839-11	METAL GLAZE	33K	5%	1/16W
R692	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R694	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R695	1-216-844-11	METAL GLAZE	82K	5%	1/16W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R698	1-216-837-11	METAL GLAZE 22K 5% 1/16W	
R699	1-216-827-11	METAL GLAZE 3.3K 5% 1/16W	
R700	1-216-857-11	METAL GLAZE 1M 5% 1/16W	

CRYSTAL

Ref.No	Part No.	Description	Remark
X501	1-578-689-21	VIBRATOR (14.3MHz)	

* * *

A-7071-083-A MJ-40 BOARD, COMPLETE (Ref. No. 6000 series)

CAPACITOR

Ref.No	Part No.	Description	Remark
C751	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C752	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C753	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C754	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C755	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C756	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN751	* 1-568-332-11	CONNECTOR, BOARD TO BOARD 12P	
CN752	* 1-565-543-11	PIN, CONNECTOR (PC BOARD) 4P	

JACK

Ref.No	Part No.	Description	Remark
J751	1-507-899-00	JACK (SMALL TYPE) (EXT MIC)	
J752	1-563-454-11	JACK, MINIATURE (DC OUT)	

COIL

Ref.No	Part No.	Description	Remark
L751	1-410-369-11	INDUCTOR CHIP 1UH	
L752	1-410-369-11	INDUCTOR CHIP 1UH	
L753	1-410-369-11	INDUCTOR CHIP 1UH	
L754	1-410-369-11	INDUCTOR CHIP 1UH	
L755	1-410-369-11	INDUCTOR CHIP 1UH	

* * *

* A-7071-084-A FC-28 BOARD, COMPLETE (Ref. No. 7000 series)

CONNECTOR

Ref.No	Part No.	Description	Remark
CN601	1-566-532-11	CONNECTOR, FPC (ZIF) 16P	
CN602	1-569-476-11	CONNECTOR,FPC (SMT TYPE ZIF)12P	
CN603	* 1-565-875-11	PIN, CONNECTOR (PC BOARD) 3P	
CN604	* 1-566-764-11	PIN, CONNECTOR (PC BOARD) 9P	

DIODE

Ref.No	Part No.	Description	Remark
D601	8-719-940-45	DIODE DWA010	

RESISTOR

Ref.No	Part No.	Description	Remark
R601	1-216-017-00	METAL GLAZE 47 5% 1/10W	

SWITCH

Ref.No	Part No.	Description	Remark
S601	1-571-787-31	SWITCH, TACTILE (REC START/STOP)	
S602	1-571-787-11	SWITCH, TACTILE (COUNTER RESET)	
S603	1-571-787-11	SWITCH, TACTILE (ZERO MEN)	
S604	1-571-787-11	SWITCH, TACTILE (EDITSEARCH+)	
S605	1-571-787-11	SWITCH, TACTILE (EDITSEARCH−)	
S606	1-571-787-11	SWITCH, TACTILE (INDEX MARK)	

* * *

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
	1-634-422-11	SW-120 BOARD	(Ref. No. 7000 series)

CONNECTOR

Ref.No	Part No.	Description	Remark
CN701	* 1-566-764-11	PIN, CONNECTOR (PC BOARD) 9P	
CN702	* 1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P	

DIODE

Ref.No	Part No.	Description	Remark
D701	8-719-977-34	DIODE DTZ12	
D702	8-719-977-34	DIODE DTZ12	
D705	8-719-977-34	DIODE DTZ12	

JACK

Ref.No	Part No.	Description	Remark
J701	1-507-929-11	JACK (HEADPHONE)	
J702	1-565-276-11	JACK, ULTRA SMALL 1P (REMOTE)	

COIL

Ref.No	Part No.	Description	Remark
L701	1-410-369-11	INDUCTOR CHIP 1UH	
L702	1-410-369-11	INDUCTOR CHIP 1UH	
L703	1-410-369-11	INDUCTOR CHIP 1UH	
L704	1-410-369-11	INDUCTOR CHIP 1UH	
L705	1-410-369-11	INDUCTOR CHIP 1UH	
L706	1-410-369-11	INDUCTOR CHIP 1UH	

SWITCH

Ref.No	Part No.	Description	Remark
S701	1-570-870-11	SWITCH, SLIDE (STANDBY)	
S702	1-571-838-11	SWITCH, TACTIL (REC START/STOP)	

* * *

MISCELLANEOUS

Ref.No	Part No.	Description	Remark
	⚠1-466-230-21	CONVERTER UNIT, D/D	
	1-542-143-11	MICROPHONE (STEREO TYPE)	
	1-547-381-12	FILTER BLOCK, OPTICAL	
	1-547-413-11	LENS, ZOOM (VCL-8508XG)	
	1-569-346-11	CONNECTOR, FPC(TRANSLATION)10P	
	1-569-347-11	CONNECTOR, FPC(TRANSLATION)13P	
	1-572-173-11	SWITCH, SLIDE (ENCODER)	
	1-572-253-11	SWITCH, SLIDE (ENCODER)	
	1-572-320-11	SWITCH, PUSH	
	1-628-060-12	FP-89 FLEXIBLE BOARD	
	1-628-061-12	FP-90 FLEXIBLE BOARD	
	1-634-011-11	FP-264 FLEXIBLE BOARD	
	1-634-433-11	FP-262 FLEXIBLE BOARD	
	1-808-505-12	SENSOR (DEW)	
	8-719-979-92	DIODE SPI-315-25-CD	
	8-719-979-92	DIODE SPI-315-25-CD	
D301	8-719-820-44	PHOTO COUPLER TLP907-0	
D302	8-719-940-81	DIODE GL452S	
D303	8-719-820-44	PHOTO COUPLER TLP907-0	
IC101	※ 8-752-603-27	IC ICX038AK-2	
L901-1	⚠1-451-310-21	DEFLECTION YOKE (B/W)	
M902	8-835-331-01	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-208-A	MOTOR ASSY, THREADING (LOADING)	
Q301	8-729-906-48	EE-TP109	
Q302	8-729-906-48	EE-TP109	
S302	1-572-298-11	SWITCH, PUSH	
S901	1-571-099-11	SWITCH	
V901-1	⚠1-546-085-11	CATHODE-RAY TUBE, B/W	
V901-2	⚠1-452-482-11	CRT ASSY (M91JYZ60WB)	

※ For replacement of CCD imager, CD-20 board, complete and DT-77 board, complete read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 121.

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

ACCESSORIES & PACKING MATERIALS
* *

Ref.No	Part No.	Description	Remark
	1-465-505-11	COMMANDER, REMOTE	
	*1-575-335-21	CORD, CONNECTION	
	1-575-795-11	CORD, CONNECTION	
	*3-340-514-01	BAG, PROTECTION	
	*3-701-625-00	BAG, POLYETHYLENE	
	*3-744-727-01	CUSHION (UPPER)	
	*3-744-728-01	CUSHION (LOWER)	
	3-751-608-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-751-608-31	MANUAL, INSTRUCTION (FRENCH)	

* *

ACCESSORIES & PACKING MATERIALS (KIT)
* *

Ref.No	Part No.	Description	Remark
	A-6767-816-A	RF UNIT (CCD-V700)	
	A-6768-253-A	RF UNIT (CCD-V101)	
	2-180-621-11	CASE, RECEIVE	
	* *	AC ADAPTOR (AC-V35)	
	* * *	BATTERY PACK (NP-66)	

NOTE :

* * Mark parts is available for repair service.

* * * Mark parts is available as a optional accessories.

HARDWARE LIST
* * * * * * * * * * *

SCREW

Ref.No	Part No.	Description	Remark
	7-621-255-15	SCREW +P 2X3	
	7-621-255-25	SCREW, +BVTT 2X4 (S)	
	7-621-281-15	SCREW +P 2X2	
	7-627-553-37	SCREW (M2X3), SPECIAL HEAD	
	7-627-553-37	PRECISION SCREW +P 2X3 TYPE3	
	7-627-553-47	SCREW, PRECISION +P 2X4	
	7-627-553-68	SCREW, PRECISION +P 2X6 TYPE3	
	7-627-554-07	PRECISION SCREW +P 2X2.2 TYPE3	
	7-627-555-88	SCREW, PRECISION +P 1.4X1.4	
	7-627-555-88	SCREW (M1.4X1.8)	
	7-685-103-19	+P TPWH (2X5)	

STEEL BALL
* * * * * * * * * * * *

Ref.No	Part No.	Description	Remark
	7-671-155-01	STEEL BALL 3.0	

TAPE, POLYESTER
* * * * * * * * * * * *

Ref.No	Part No.	Description	Remark
	7-632-701-38	TAPE, POLYESER (No. 630) (6MMX30M)	

When indicating parts by reference number, please include the board name.

English
90G0450-1
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© 1990. 7

9-972-940-11

Sony Corporation
Personal Video Group

Published by Customer Relations and Service Group

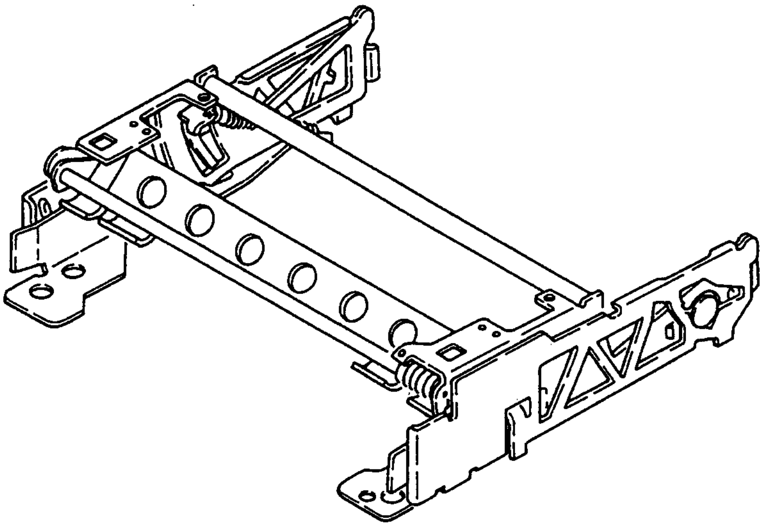
8mm Video MECHANICAL ADJUSTMENT MANUAL II

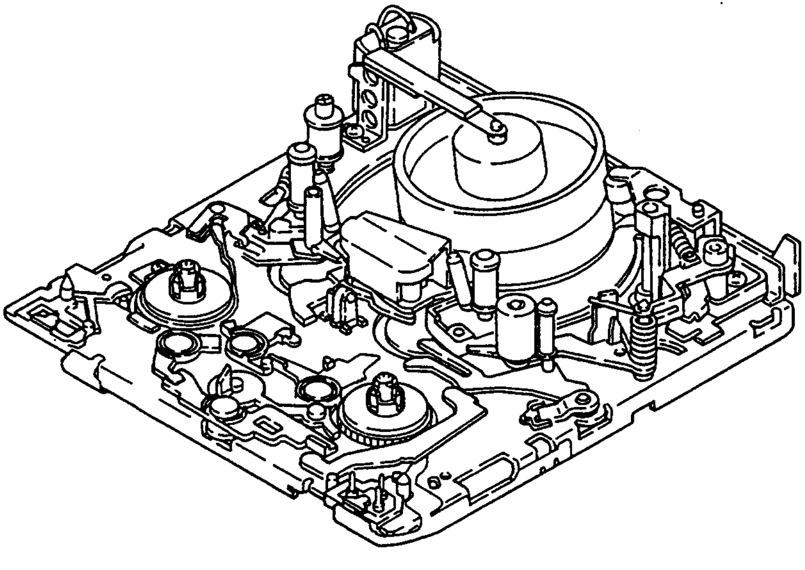
U MECHANISM

Video 8

Please use in conjunction with the SERVICE MANUAL.

V01571





8 MECHANISM DECK

SONY®

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1. PREPARATIONS FOR MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Note: For removal of the cabinet, the boards, the cassette compartment, etc., refer to the service guides.

1-1. OPERATION WITHOUT CASSETTE COMPARTMENT ASSEMBLY AND TAPE

Note: The unit will not work if exposed to a strong light.

1-1-1. How to Trigger the Loading Operation (See Fig. 1-1.)

1) Supply power to the unit after removing the cabinet, the camera block, the cassette compartment assembly, etc., as indicated in the service guides. (This will enable operation of the mechanical deck.)
2) Cover the LED assembly with an opaque cap, etc. ❶.
3) Attach a piece of tape to the RECOG switch ❷ so that the pin is held down.
4) Push the EJECT lever ❸ in the direction of the arrow Ⓐ.

1-1-2. Setting the Playback Mode (See Fig. 1-1.)

1) Follow the procedures in section 1-1-1. above.
2) Put the rubber band ❹ around the S and T reels.
3) Press the PLAY switch of unit, then push the tension regulator arm assembly ❺ in the direction of the arrow Ⓑ when the T reel starts to rotate (the tension regulator band will be released, and the S reel will start rotating).
4) To stop operation, press the STOP switch.

1-1-3. Eject Operation (See Fig. 1-1.)

1) To eject, turn the EJECT switch on.

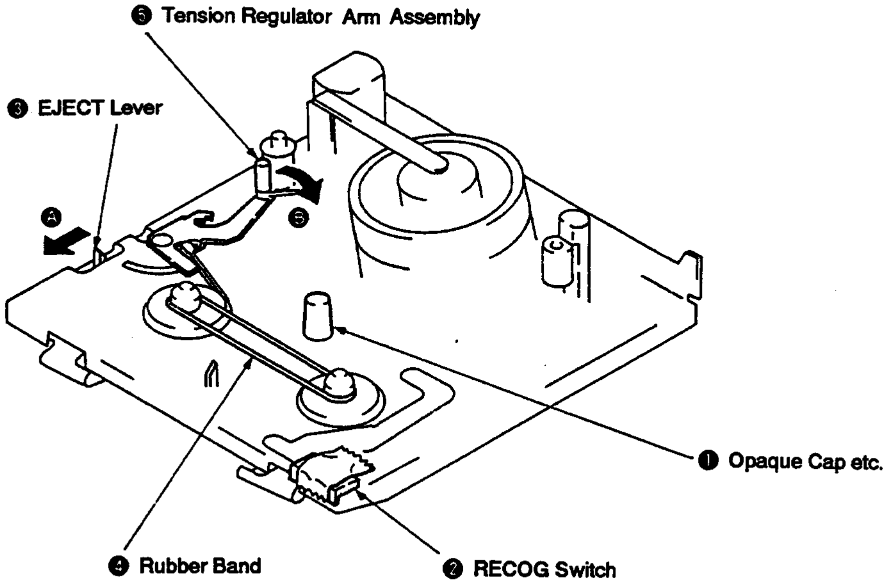


Fig. 1-1.

1-2. THE MODE SELECTOR

1-2-1. Name of Each Part (external) (See Fig. 1-2.)

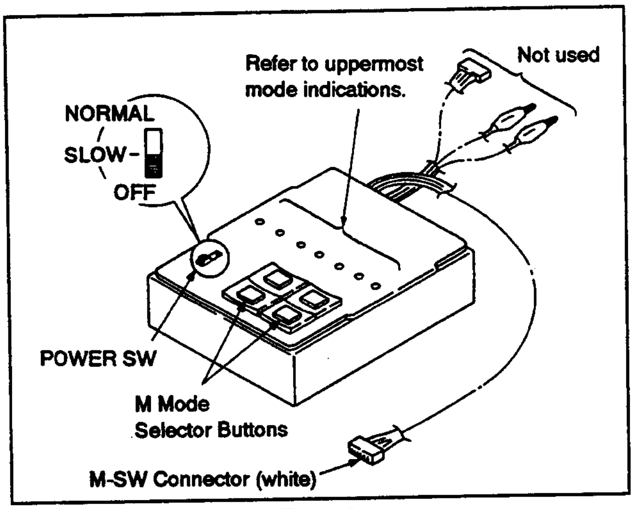

Refer to uppermost mode indications.
Not used
NORMAL
SLOW
OFF
POWER SW
M Mode Selector Buttons
M-SW Connector (white)

Fig. 1-2.

1-2-2. Connections (See Fig. 1-3.)

1) Mount the MODE SELECTOR III panel (Ref. No. J-9) ❶ onto the mode selector.
2) Attach the conversion connector (Ref. No. J-8) ❸ of MODE SELECTOR III to the 6-pin connector (white) ❷ of the mode selector M-SW.
3) Remove the FP-89 flexible board ❺ from the flexible connector ❹.
4) Attach the FP-89 flexible board ❺ to the flexible connector ❻ of the MODE SELECTOR III conversion connector ❸, then attach the 2-pin connector (white) ❽ of the loading motor to the 2-pin connector (white) ❼.

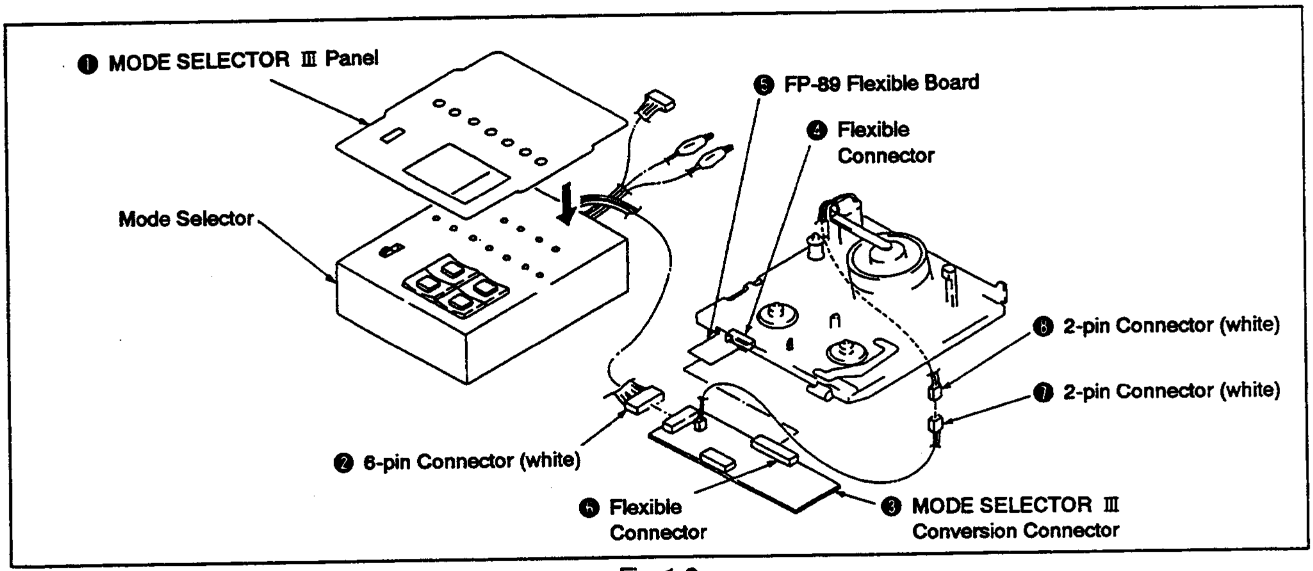

❶ MODE SELECTOR Ⅲ Panel
Mode Selector
❺ FP-89 Flexible Board
❹ Flexible Connector
❽ 2-pin Connector (white)
❼ 2-pin Connector (white)
❷ 6-pin Connector (white)
❻ Flexible Connector
❸ MODE SELECTOR Ⅲ Conversion Connector

Fig. 1-3.

1-2-3. Handling (See Figs. 1-2. and 1-4.)

- Use only the M mode selector buttons.
- Refer to mode indications on the uppermost part of the MODE SELECTOR III panel.
- If the right M mode selector button is kept pressed, the lit indication will change in the order of EJECT → (IA) → ULD → (IB) → STOP → (IC) → FWD.
- To change modes in the reverse direction (from FWD to EJECT), press the left selector button.

Note: For this U mechanism, the uppermost indicators on the MODE SELECTOR III panel are used. The IA, IB and IC indications light up during mode changes.

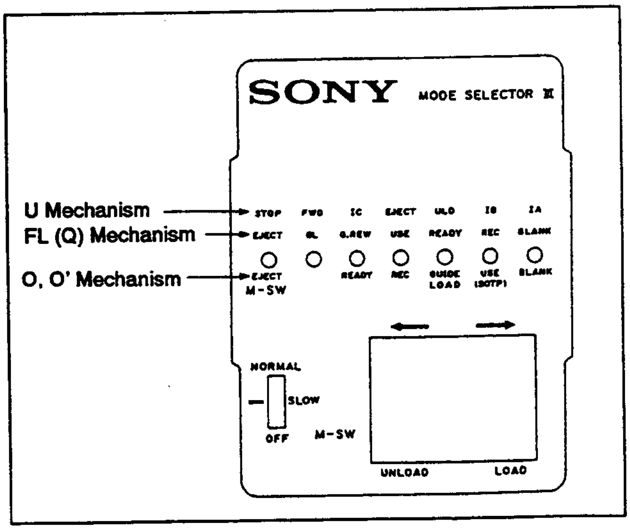

SONY MODE SELECTOR Ⅲ
U Mechanism
FL (Q) Mechanism
O, O' Mechanism
STOP
FWD
IC
EJECT
ULD
IB
IA
EJECT
BL
G.REW
USE
READY
REC
BLANK
EJECT
M-SW
READY
REC
GUIDE LOAD
USE (30TP)
BLANK
NORMAL
SLOW
OFF
M-SW
UNLOAD
LOAD

Fig. 1-4.

2. PERIODICAL CHECK AND MAINTENANCE (See Fig. 2-1.)

The following periodical check and maintenance procedures are necessary to ensure proper operation and to protect the tapes as well as the unit, and the following maintenance procedures must be always carried out after repairing regardless of how long the unit has been used.

2-1. ROTARY DRUM ASSEMBLY CLEANING

1) While pressing a piece of chamois leather (Ref. No. J-2) moistened in cleaning fluid (Ref. No. J-1) lightly against the rotary drum, turn the rotary upper drum slowly counter-clockwise with your fingers.

Note: Do not drive the drum with the motor, and do not turn it clockwise.
Do not move the chamois leather vertically against the head tip; this can damage the head tip. Strictly follow the cleaning instructions above.

2-2. TAPE PATH CLEANING

1) Set the cassette compartment assembly to the eject state, or remove it. Then clean the tape path (guides No. 1 to 7, capstan shaft, pinch rollers) with a piece of chamois leather moistened in cleaning fluid (See Fig. 2-1).

2-3. DRIVE SYSTEM CLEANING

1) Clean the drive system (timing belt, reel table surface) with a piece of cloth moistened in cleaning fluid.

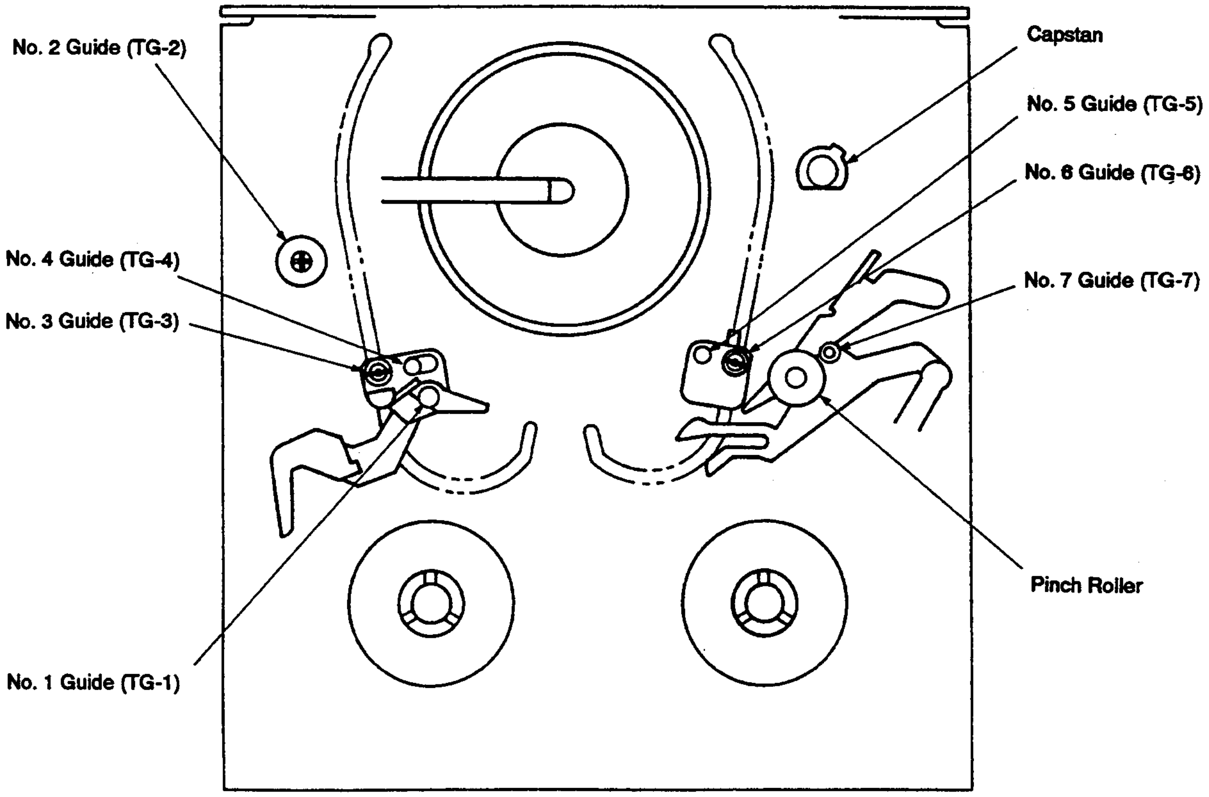


Fig. 2-1.

2-4. PERIODICAL CHECK ITEMS

○Cleaning ◎Lubrication ☆Check

Maintenance and Check Item		Operation time (H)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Cleaning and Demagnetizing	Tape path surfaces Cleaning	○	○	○	○	○	○	○	○	○	○	Do not oil.
	Rotary drum assembly cleaning and demagnetizing	○	○	○	○	○	○	○	○	○	○	Do not oil.
Drive System	Relay belt (short)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-866-01
	Relay belt (long)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-865-01
	Capstan shaft	–	◎	–	◎	–	◎	–	◎	–	◎	Take care that no oil gets on tape path surfaces.
	Idler pulley axle	–	◎	–	◎	–	◎	–	◎	–	◎	
	Loading motor	–	☆	–	☆	–	☆	–	☆	–	☆	1-541-612-11
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	–	☆	–	☆	–	☆	–	☆	–	☆	
	Brake system	–	☆	–	☆	–	☆	–	☆	–	☆	
	FWD, RVS torque measurement	–	☆	–	☆	–	☆	–	☆	–	☆	

Notes: When overhauling the unit, perform parts replacement referring to the table above.

Regarding Oil:

- Always use the specified oil (using oil of different viscosity, etc. can cause troubles of several kinds). Specified oil: Part No. 7-661-018-01 (Mitsubishi Diamond Oil Hydrofluid EP56)
- Be sure that no dirt is mixed in the oil to be used on axle bearings. Use of dirty oil can result in bearing wear and burning.
- By "one drop of oil" is meant the quantity of oil adhering to the end of a a 2mm-diameter rod as shown in Fig. 2-2.

On grease:

- Use the specified grease. Grease: Part No. 7-662-010-08 (Sony grease SGL-701)

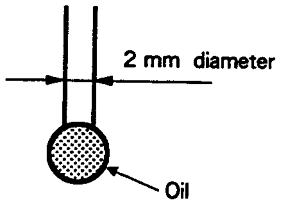


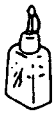
Fig. 2-2.

2-5. SERVICING TOOLS

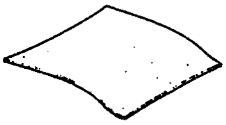
Ref. No.	Name	Part Code	Marking	Application, etc.
J-1	Cleaning fluid	Y-2031-001-0	–	
J-2	Chamois cloth	2-034-697-00	–	
J-3	Head demagnetizer	Commercially available	–	
J-4	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-6	FWD/RVS takeup torque cassette	J-6080-824-A	GD-2086	
J-7	Rotary drum jig	(Attached to the maintenance rotary upper drum)		
J-8	Mode selector III conversion connector	J-6082-021-A		General
J-9	Mode selector III panel	J-6082-023-A		General
J-10	Mode selector	J-6080-825-A		General
J-11	Hexagonal wrench detection (0.89 mm) or L wrench (0.89 mm)	7-700-766-01 7-700-736-06		Tape path
J-12	Sony grease (SGL-701)	7-662-010-08		

Other devices: Oscilloscope
Analog tester (20 kΩ)

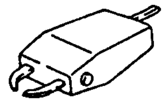
J-1



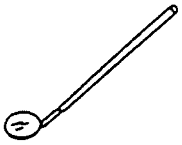
J-2



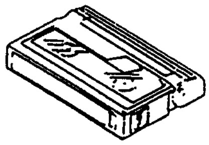
J-3



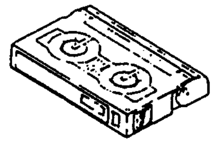
J-4



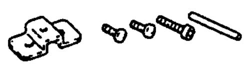
J-5



J-6

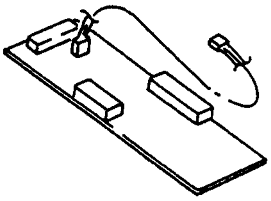


J-7

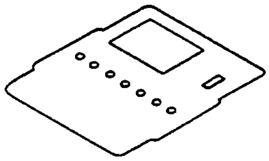


(Attached to the maintenance rotary upper drum)

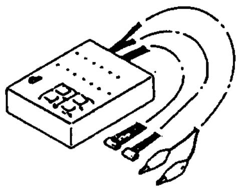
J-8



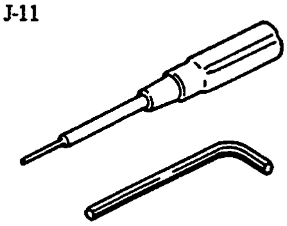
J-9



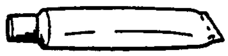
J-10



J-11



J-12



3. MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Notes:
- Use the mode selector (Ref. No. J-10) for procedures in this chapter.
- Modes within a frame ☐ are those set by pressing the buttons of the mode selector.

3-1. HC ROLLER ASSEMBLY

1. Removal (See Fig. 3-1.)

1) Remove the screw ❶, then remove the HC roller assembly ❷.

2. Installation (See Fig. 3-1.)

1) Align the two dowels ❸ attached to the HC roller assembly ❷ with the two holes ❹ in the mechanism chassis.
2) Secure the HC roller assembly ❷ with the screw ❶.

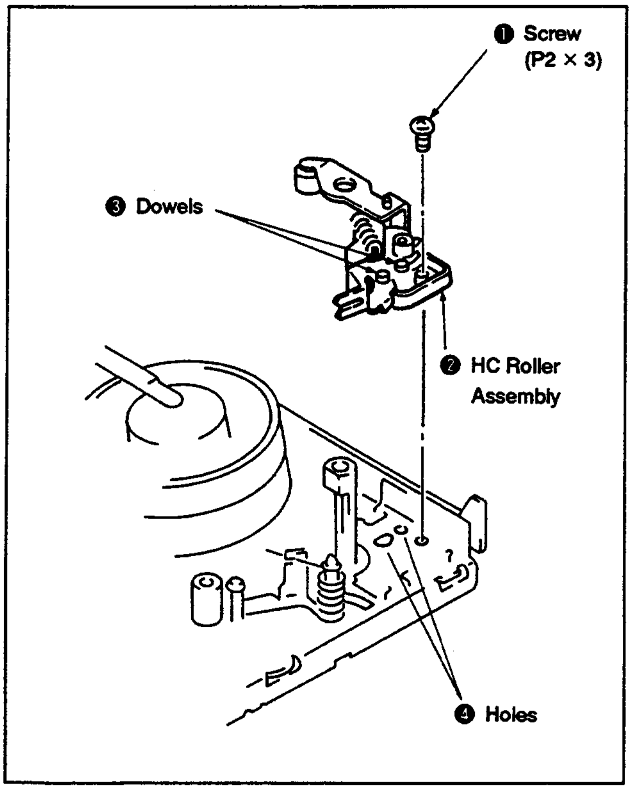

❶ Screw
(P2 × 3)
❸ Dowels
❷ HC Roller
Assembly
❹ Holes

Fig. 3-1.

3-2. GUIDE GUARD ASSEMBLY

1. Removal (See Fig. 3-2.)

Remove the screw ❶, then remove the guide guard assembly ❷.

2. Installation (See Fig. 3-2.)

1) Align the dowel ❸ attached to the guide guard assembly ❷ with the hole ❹.
2) Secure the guide guard assembly ❷ with the screw ❶.

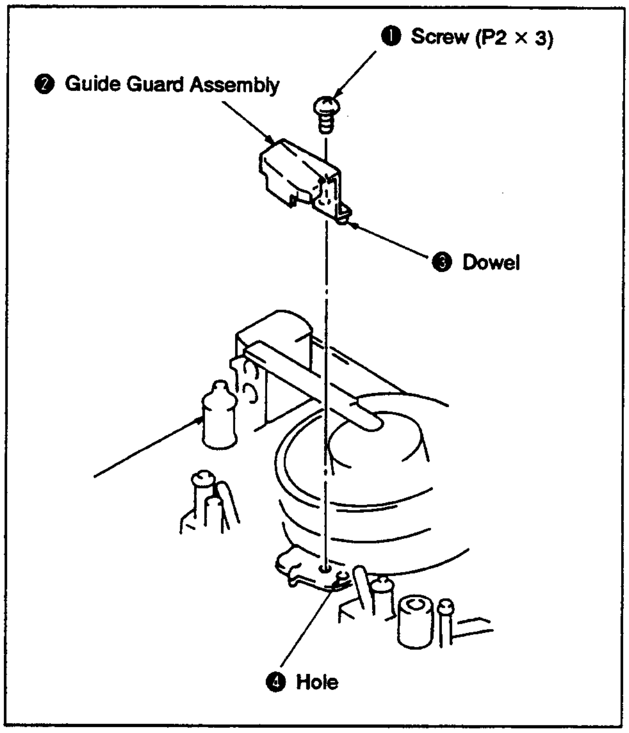

❶ Screw (P2 × 3)
❷ Guide Guard Assembly
❸ Dowel
❹ Hole

Fig. 3-2.

3-3. DC MOTOR (CAPSTAN MOTOR) ASSEMBLY

1. Removal (See Fig. 3-3.)

1) Set the ULD mode.
2) Turn the stopper ❶ in the direction of the arrow 🅐 as far as it will go.
3) Remove the two screws ❷, then remove the DC motor ❸.

2. Installation (See Fig. 3-3.)

1) Align the two screwed dowels ❹ with the two holes ❺, then engage the toothed part ❻ with the connecting gear ❼.
2) Secure the DC motor assembly ❸ with the two screws ❷.
3) Turn the stopper ❶ in the direction of the arrow 🅑 as far as it will go.

Note:
- When engaging the gears, take care not to damage their teeth.
- Do not leave any clearance between the DC motor ❸ and the chassis.
- Do not touch the capstan motor axle*, the oil seal* and the rotor*.

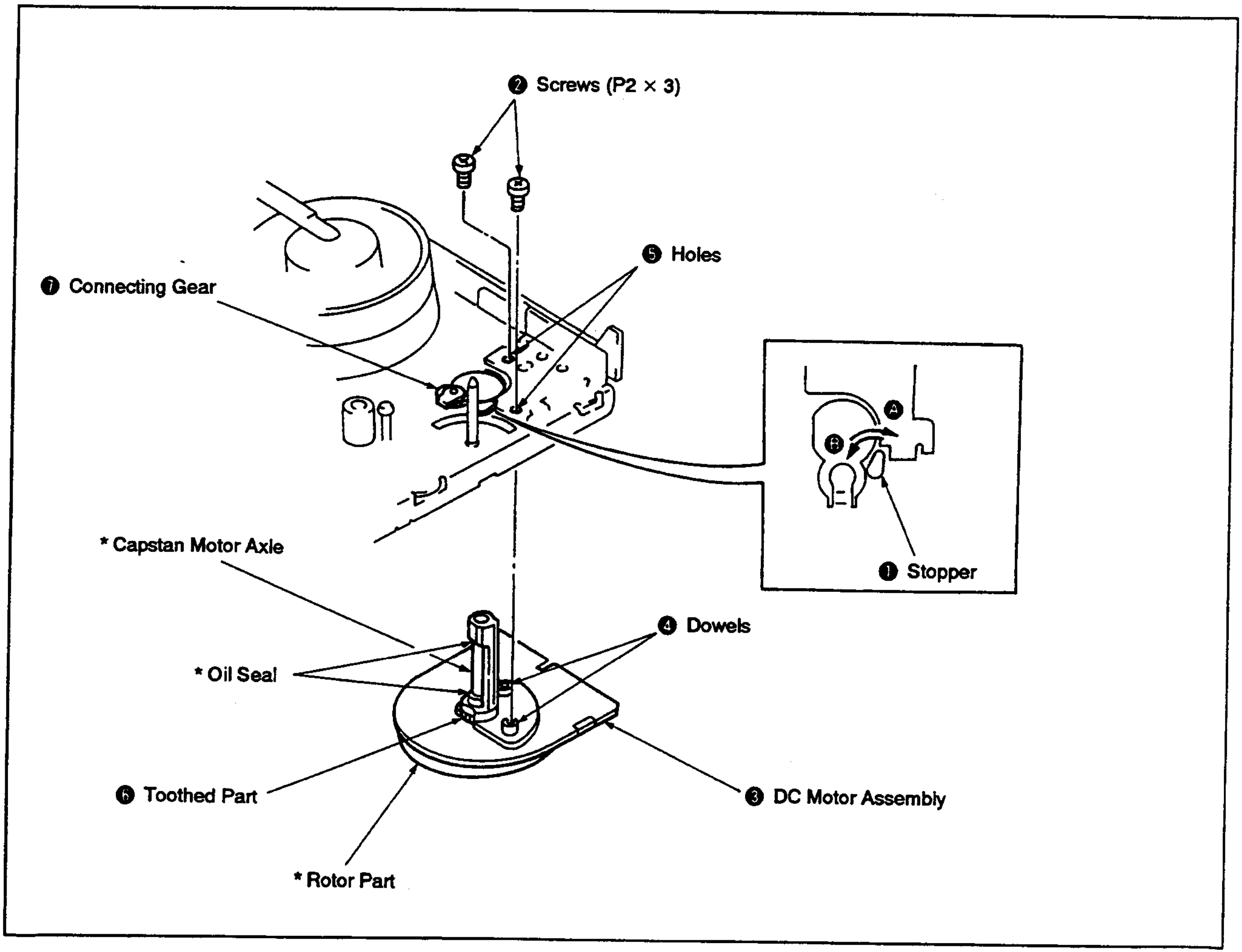

❷ Screws (P2 × 3)
❺ Holes
❼ Connecting Gear
🅐
🅑
❶ Stopper
* Capstan Motor Axle
❹ Dowels
* Oil Seal
❻ Toothed Part
❸ DC Motor Assembly
* Rotor Part

Fig. 3-3.

3-4. S BRAKE, T BRAKE

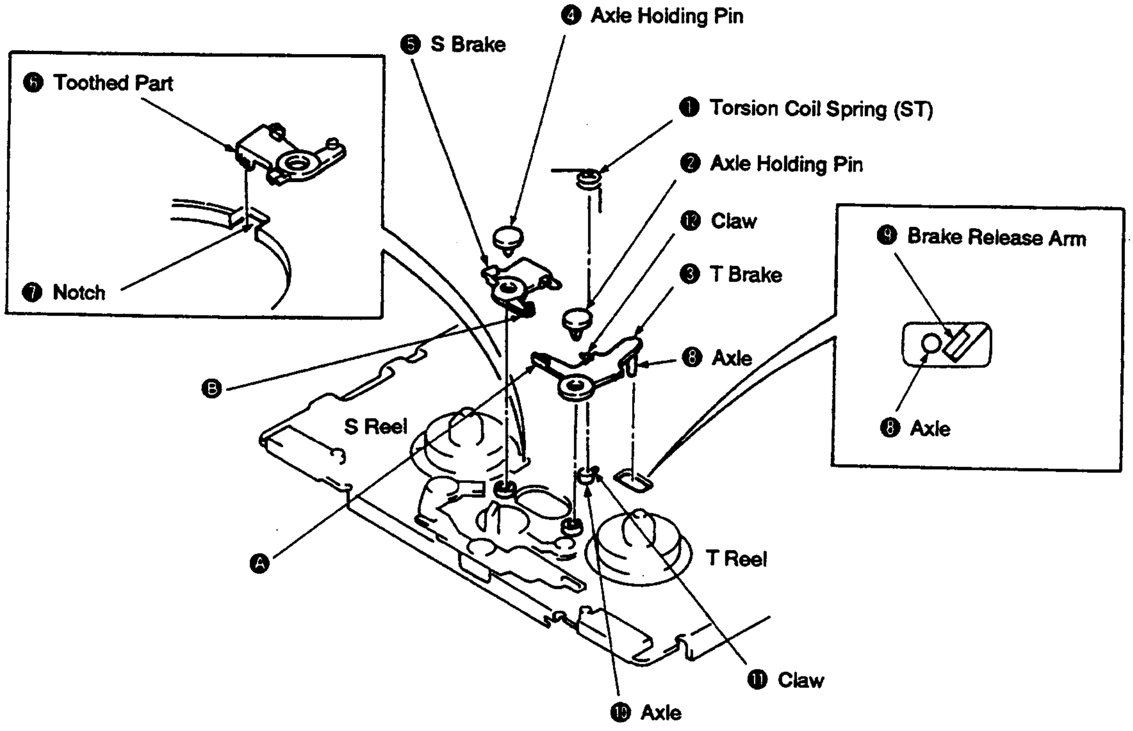
1. Removal (See Fig. 3-4.)

1) Remove the torsion coil spring (ST) ①.
2) Remove the axle holding pin ②, then remove the T brake ③.
3) Remove the axle holding pin ④, then remove the S brake ⑤.

2. Installation (See Fig. 3-4.)

1) While fitting the toothed part ⑥ into the notch ⑦, mount the S brake ⑤.
2) Insert the axle holding pin ④.
3) Insert the axle ⑧ to the S reel side of the brake release arm ⑨ so that the Ⓐ part comes closer to the drum than part Ⓑ, and mount the T brake ③.
4) Insert the axle holding pin ②.
5) Insert the torsion coil spring (ST) ① below the claw ⑪ of the axle ⑩, then hook it to two claws ⑫.

Note: Confirm that the claws of axle holding pins ② and ④ are not broken before assembling.



④ Axle Holding Pin
⑤ S Brake
⑥ Toothed Part
⑦ Notch
① Torsion Coil Spring (ST)
② Axle Holding Pin
⑫ Claw
③ T Brake
⑨ Brake Release Arm
⑧ Axle
⑧ Axle
Ⓑ
S Reel
Ⓐ
T Reel
⑪ Claw
⑩ Axle

Fig. 3-4.

3-5. LB BRAKE, AXLE HOLDING PINS

1. Removal (See Fig. 3-5.)

1) Remove the screw ❶, then remove the TL holding plate ❷.
2) Remove the axle holding pin ❸, then remove the LB brake ❹.
3) Remove the axle holding pin ❺, then remove the LB lever ❻.

2. Installation (See Fig. 3-5.)

1) Mount the LB lever ❻ matching it to pin ❼ of the LB gear, then secure it with the axle holding pin ❺.
2) Insert the pin ❽ into the notch ❾ of the LB lever ❻, then mount the LB brake ❹ while inserting the toothed part ❿ into the notch ⓫.
3) Insert the axle holding pin ❸.
4) Align the dowel ⓬ with the hole ⓭, then mount the TL holding plate and secure it with the screw ❶.

Note: Confirm that the claws of axle holding pins ❸ and ❺ are not broken before assembling.

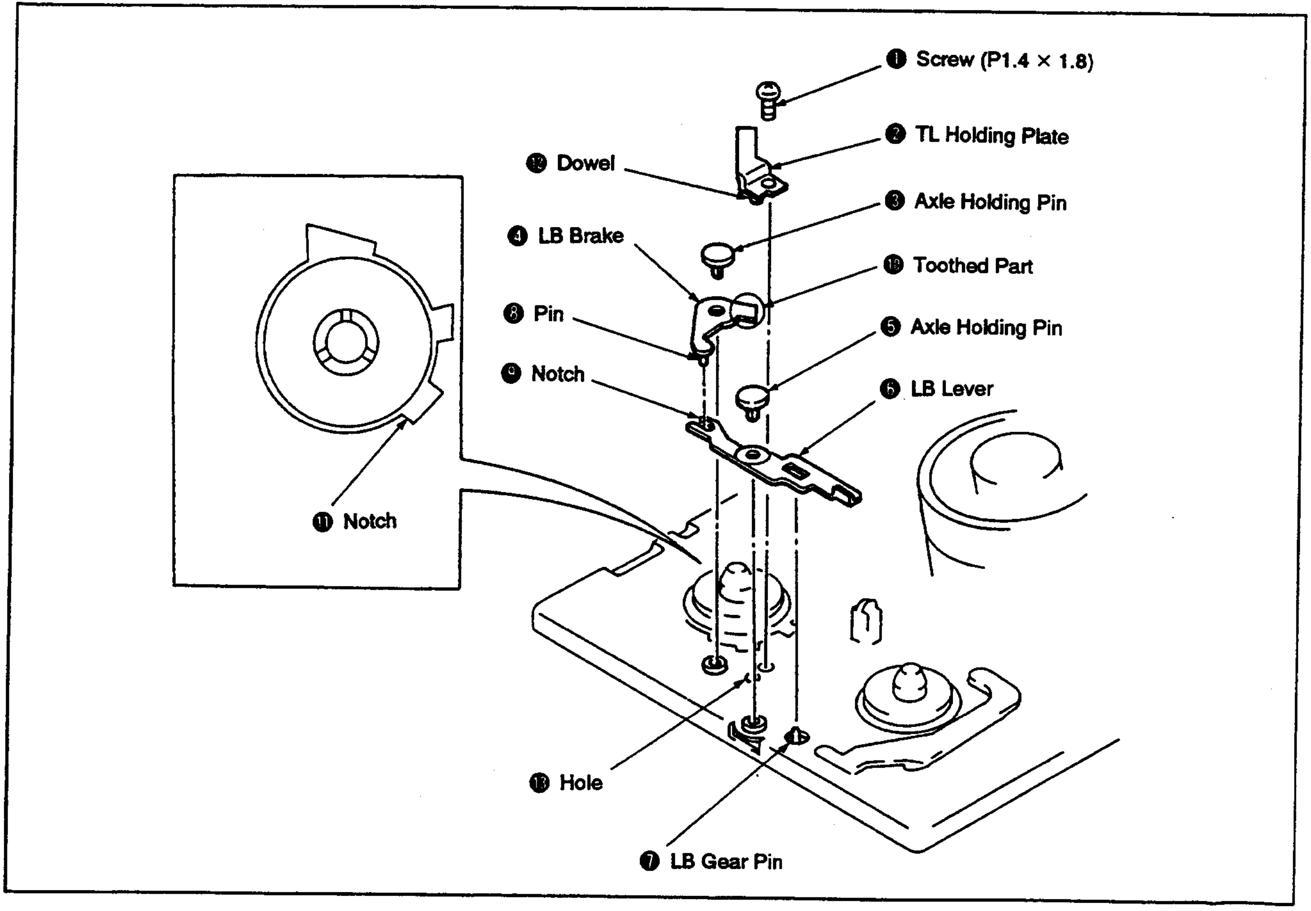

❶ Screw (P1.4 × 1.8)
❷ TL Holding Plate
⓬ Dowel
❸ Axle Holding Pin
❹ LB Brake
⓾ Toothed Part
❽ Pin
❺ Axle Holding Pin
❾ Notch
❻ LB Lever
⓫ Notch
⓭ Hole
❼ LB Gear Pin

Fig. 3-5.

3-6. LB RELEASE ARM

1. Removal (See Fig. 3-6.)

1) While pushing the claw ① in the direction of the arrow, remove the LB release arm ②.

2. Installation (See Fig. 3-6.)

1) Fit the LB release arm ② to the axle ③, insert protrusions ⓐ, ⓑ, ⓒ, ⓓ into the three holes ④, then secure with the claw ①.

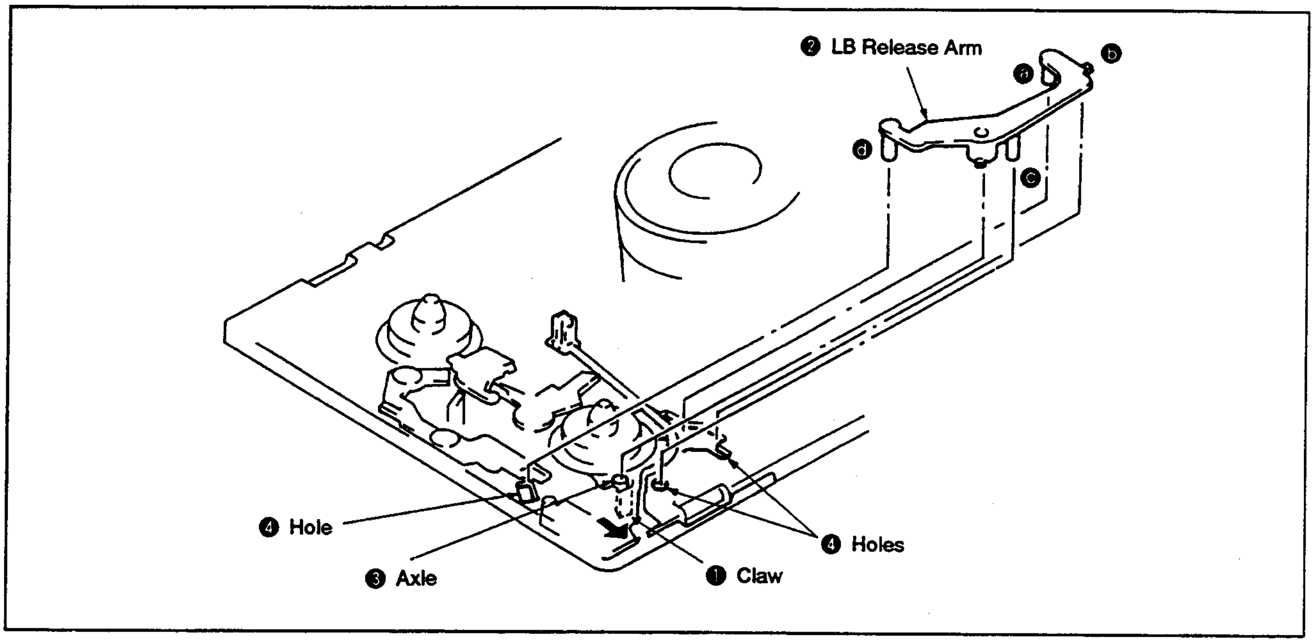

② LB Release Arm
ⓑ
ⓐ
ⓓ
ⓒ
④ Hole
③ Axle
① Claw
④ Holes

Fig. 3-6.

3-7. RK STOPPER, RK STOPPER ARMS

1. Removal (See Fig, 3-7.)

1) Remove the torsion coil spring (RK) ①.
2) Open the chassis claw ②, then remove the RK stopper arm ③.
3) Remove the RK stopper ④.

2. Installation (See Fig. 3-7.)

1) Mount the RK stopper ④ onto the axle ⑤.
2) Mount the RK stopper arm ③ onto the axle ⑥, insert Pin ⑩ into hole ⑪, then hook the claw ② of the chassis to the hole ⑦.
3) Insert the torsion coil spring (RK) ① into the axle ⑤, then hook it to claws ⑧ and ⑨.

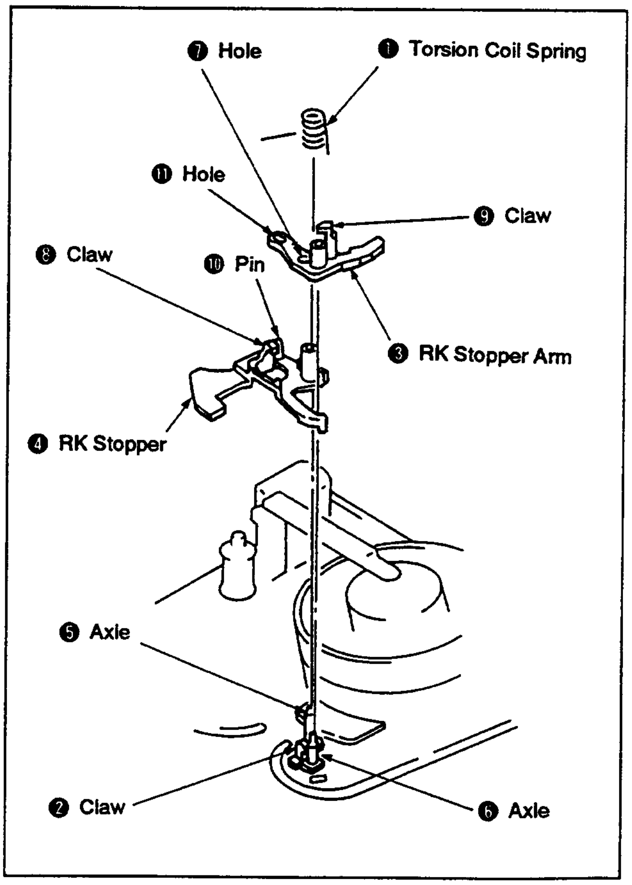

⑦ Hole
① Torsion Coil Spring
⑪ Hole
⑨ Claw
⑧ Claw
⑩ Pin
③ RK Stopper Arm
④ RK Stopper
⑤ Axle
② Claw
⑥ Axle

Fig. 3-7.

3-8. PINCH ARM ASSEMBLY, TG-7 ASSEMBLY

1. Removal (See Fig. 3-8.)

1) Set the $\boxed{\text{IB}}$ mode.
2) Remove the stopper washer ❶, then remove the pinch arm assembly ❷.
3) Bend the claw ❹ inside hole ❸ in the direction of the arrow using a thin screwdriver or the like, then remove the TG-7 plate spring ❺.
4) Remove the TG-7 arm assembly ❻.

2. Installation (See Fig. 3-8.)

1) Grease the inner surfaces of hole ❼ (See Fig. A).
2) Insert the axle ❽ of the TG-7 arm assembly ❻ into the hole ❼.
3) Grease the shaded section ⓐ (See Fig. A).
4) Insert the TG-7 plate spring ❺ into the hole ❸, then secure it with the claw ❹.
5) Apply half a drop of oil to the axle ❾ (See Fig. B).
6) Fit the pinch arm assembly ❷ to the axle ❾ and insert the pinch roller sub arm assembly tab ❿ into the ⓑ part.
7) Install the stopper washer ❶.

Note:
- Take care not to grease the screw ⓫ of the TG-7 arm assembly ❻ (See Fig. A).
- When fitting the pinch arm assembly ❷ to the axle ❾, make sure that it does not touch the TG-7 guide ⓬ or the rubber roller ⓭.
- After assembling, be sure to perform tape path adjustment as described in section 4.

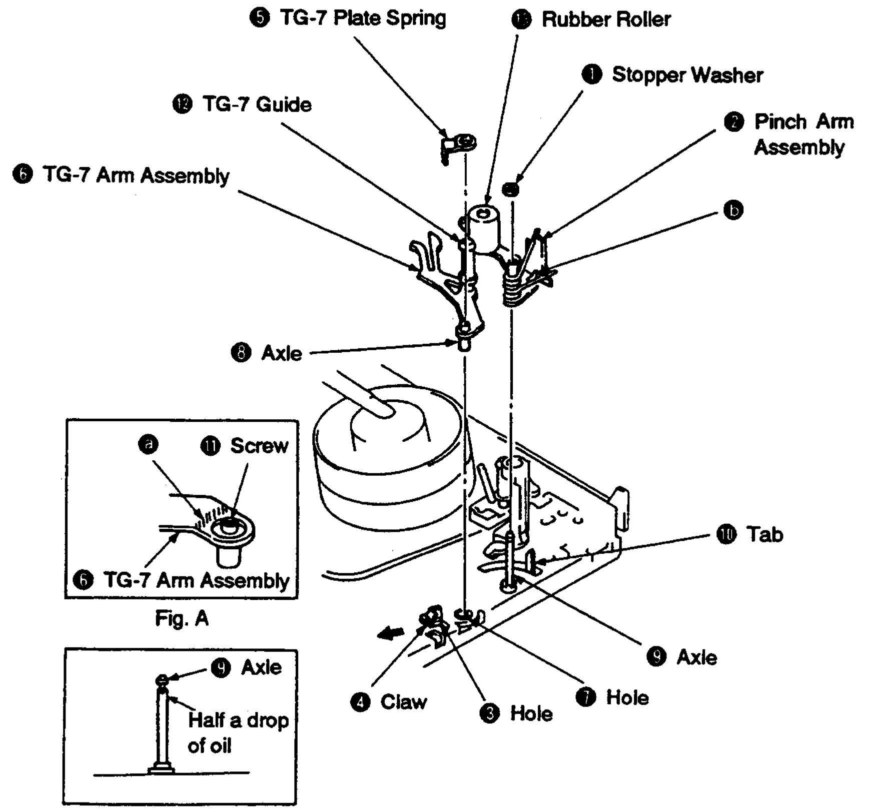

❺ TG-7 Plate Spring
⓭ Rubber Roller
❶ Stopper Washer
⓬ TG-7 Guide
❷ Pinch Arm Assembly
❻ TG-7 Arm Assembly
ⓑ
❽ Axle
ⓐ
⓫ Screw
❻ TG-7 Arm Assembly
Fig. A
❿ Tab
❾ Axle
Half a drop of oil
Fig. B
❾ Axle
❹ Claw
❸ Hole
❼ Hole

Fig. 3-8.

3-9. TG-2 ASSEMBLY

1. Removal (See Fig. 3-9.)

1) Remove the TG-2 upper flange assembly ❶.
2) Remove the TG-2 roller ❷, the TG-2 sleeve ❸, the TG-2 lower flange ❹ and the compression spring ❺.

2. Installation (See Fig. 3-9.)

1) Mount the compression spring ❺, the TG-2 lower flange ❹, the TG-2 sleeve ❸ and the TG-2 roller ❷ to the axle.
2) Secure the TG-2 upper flange ❶ to the axle by rotating it 4 to 6 turns.

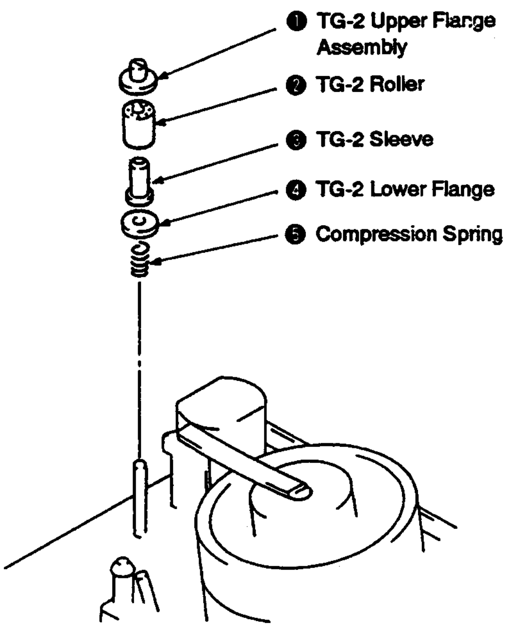

❶ TG-2 Upper Flange Assembly
❷ TG-2 Roller
❸ TG-2 Sleeve
❹ TG-2 Lower Flange
❺ Compression Spring

Fig. 3-9.

3. TG-2 Height Preset (see Fig. 3-10.)

1) Adjust height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by turning the TG-2 upper flange ❶.

Note: After adjustment, be sure to perform tape path adjustment as described in section 4.

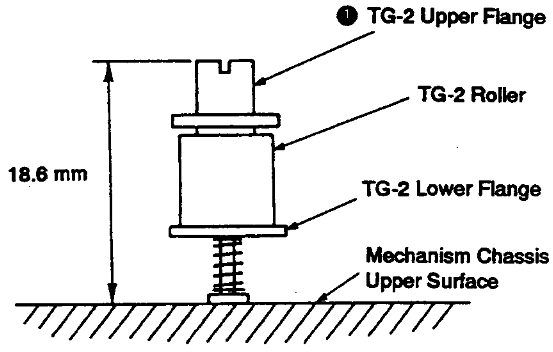

❶ TG-2 Upper Flange
TG-2 Roller
18.6 mm
TG-2 Lower Flange
Mechanism Chassis Upper Surface

Fig. 3-10.

3-10. S REEL TABLE ASSEMBLY, T REEL TABLE ASSEMBLY

1. Removal (See Fig. 3-11.)

1) Remove the S brake and T brake as described in section 3-4.
2) Remove the TL holding plate as described in section 3-5.
3) Remove the tension regulator band assembly as described in section 3-11.
4) Remove the S reel table assembly ❶.
5) Turn the stopper ❷ approx. 90 ° in the direction of the arrow Ⓐ.
6) While sliding the LB release arm ❸ in the direction of the arrow Ⓑ, remove the T reel table assembly ❹.

2. Installation (See Fig. 3-11.)

1) Apply half a drop of oil to the axle ❺ (See Fig. A).
2) Move the RK gear ❻ in the direction of the arrow Ⓒ and the TS brake ❼ in the direction of the arrow Ⓓ, putting them out of the way.
3) While sliding the LB release arm ❸ in the direction of the arrow Ⓑ, mount the T reel table assembly ❹ onto the axle ❺, then turn the stopper ❷ in the direction of the arrow Ⓔ as far as it will go.
4) Apply half a drop of oil to the axle ❽ (See Fig. B).
5) Move the RK gear ❻ in the direction of the arrow Ⓕ, the UL brake ❾ in the direction of the arrow Ⓖ and the LB brake ❿ in the direction of the arrow Ⓗ, putting them out of the way.
6) Mount the S reel table ❶ onto the axle ❽.
7) Mount the tension regulator band assembly as described in section 3-11.
8) Mount the TL holding plate as described in section 3-5.
9) Mount the S brake and T brake assemblies as described in section 3-4.

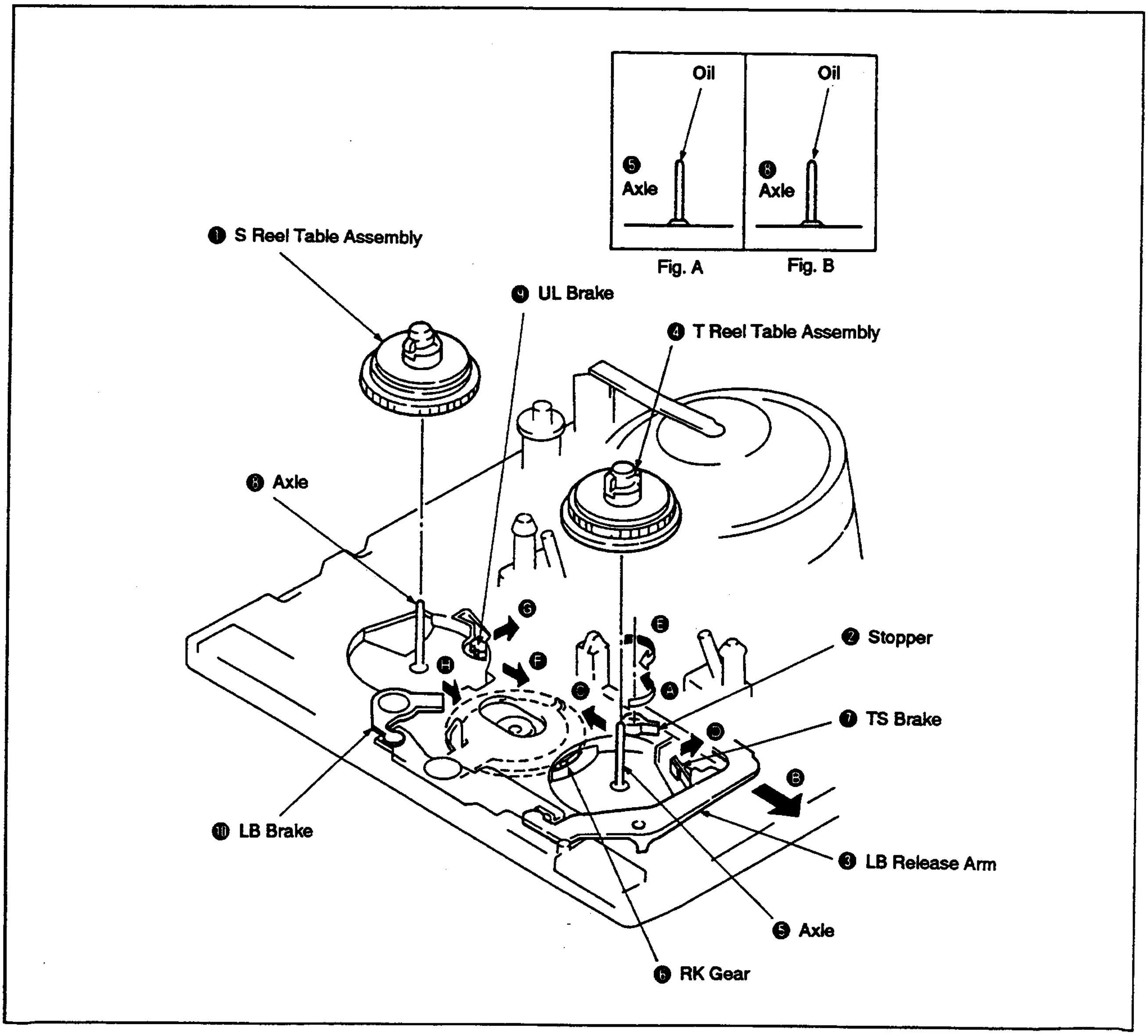

Oil
❺ Axle
Fig. A
Oil
❽ Axle
Fig. B
❶ S Reel Table Assembly
❾ UL Brake
❹ T Reel Table Assembly
❽ Axle
Ⓖ
Ⓗ
Ⓕ
Ⓔ
Ⓒ
Ⓐ
Ⓓ
Ⓑ
❷ Stopper
❼ TS Brake
❿ LB Brake
❸ LB Release Arm
❺ Axle
❻ RK Gear

Fig. 3-11.

3-11. TENSION REGULATOR BAND ASSEMBLY, TENSION REGULATOR ARM ASSEMBLY

1. Removal (See Fig. 3-12.)

1) Remove the TL holding plate as described in section 3-5.
2) Remove the screw ❶.
3) Using a thin screwdriver or the like, remove the tension regulator band assembly ❹ from the axle ❸ of tension regulator arm assembly ❷.
4) Remove the tension spring ❺.
5) Remove the stopper washer ❻ from the back of the mechanism chassis, then remove the tension regulator arm assembly ❷.
6) Open the claw ❼, then remove the adjust arm ❽.

Note: When removing the tension regulator band assembly ❹, take care not to twist or bend it, and not to touch the felt surface ❾.

2. Installation (See Fig. 3-12.)

1) Engage the adjust arm ❽ in the position shown in Fig. A, then close the claw ❼.
2) Apply half a drop of oil to the hole ❿.
3) Mount the tension regulator arm assembly ❷, then insert it into the slot ⓫ so that the ⓐ part comes to the arrow Ⓐ side of the switch lever assembly (See Fig. B).
4) While holding the tension regulator arm assembly ❷ from the mechanism chassis front, secure it with the stopper washer ❺ from the back.
5) Hook the R hook of the tension spring ❻ to the adjust arm ❽ as shown in the figure, then hook the opposite end to the tension regulator arm assembly ❷.
6) Mount the tension regulator band assembly ❹ onto the axle ❸ of tension regulator arm assembly ❷, and place it so that the felt surface ❾ comes against the shaded portion of the S reel table assembly ⓬.
7) Mount the tension regulator plate ⓭ of the tension regulator band assembly ❹ so that it is aligned with the dowel ⓮ of the mechanism chassis, then secure it temporarily with the screw ❶.
8) Mount the TL holding plate as described in section 3-5.
9) Adjust tension regulator FWD position as described in section 3-12.
10) Perform adjust arm adjustment as described in section 3-22.

Note: When mounting the tension regulator band assembly ❷, take care not to twist or bend it, and not to touch the felt surface ❾.

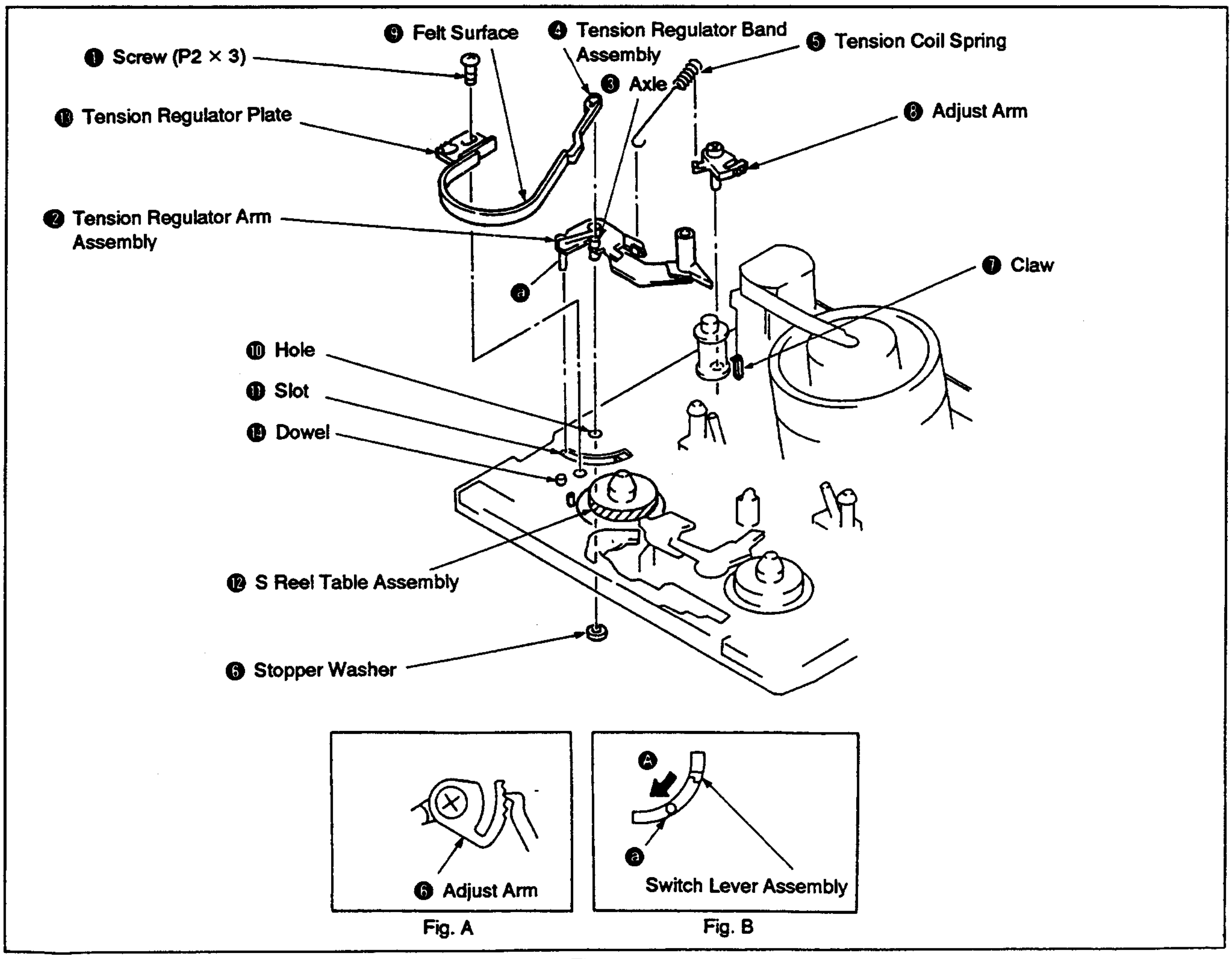

❶ Screw (P2 × 3)
❾ Felt Surface
❹ Tension Regulator Band Assembly
❸ Axle
❺ Tension Coil Spring
⓭ Tension Regulator Plate
❽ Adjust Arm
❷ Tension Regulator Arm Assembly
ⓐ
❼ Claw
❿ Hole
⓫ Slot
⓮ Dowel
⓬ S Reel Table Assembly
❻ Stopper Washer
❻ Adjust Arm
Ⓐ
ⓐ
Switch Lever Assembly

Fig. A

Fig. B

Fig. 3-12.

3-12. TENSION REGULATOR FWD POSITION PRESET (See Fig. 3-13.)

1) Load a cassette tape and set the FWD mode.
2) Confirm whether the distance between ⓐ part of the tension regulator arm ❶ and the groove ❷ of the chassis is 1.1 ± 0.3 mm. If this distance is not within the specified range, remove the cassette tape and perform the following adjustment.
3) Loosen the fixing screw ❹ of the tension regulator band assembly ❸.
4) Slide the tension regulator plate ❺ in the direction of the arrow Ⓐ if the measured distance is over the specified range, and in the direction of the arrow Ⓑ if it is under that range. Then, fix it with the screw ❹.
5) Repeat steps 1) and 2) and confirm that the distance is within the specified range.

Note: Use a cassette with the tape advanced halfway.

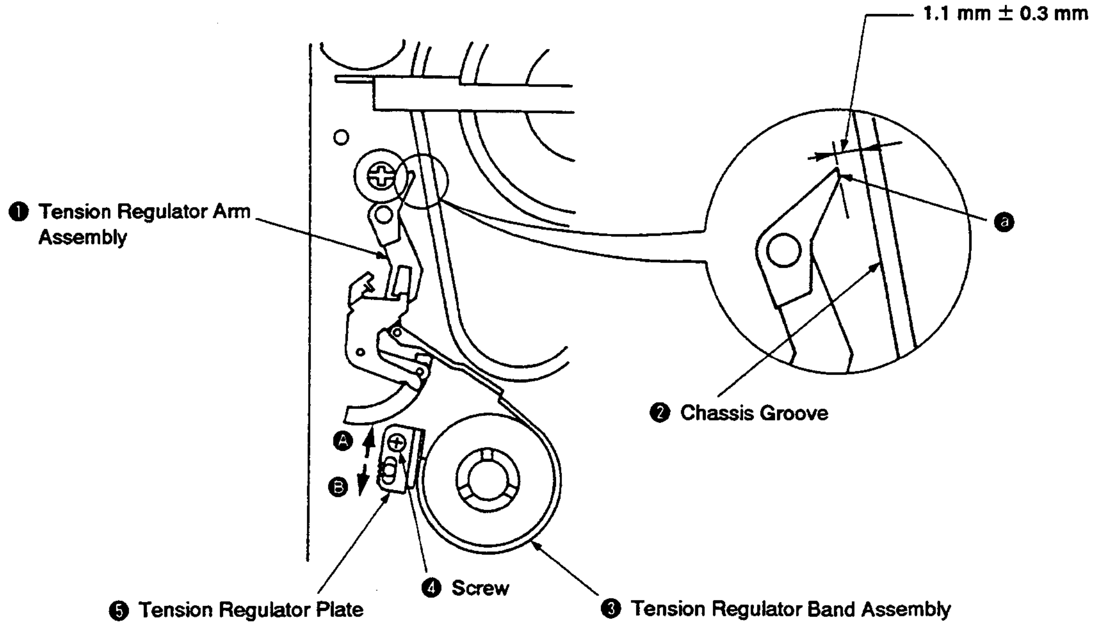

1.1 mm ± 0.3 mm
❶ Tension Regulator Arm Assembly
ⓐ
❷ Chassis Groove
Ⓐ
Ⓑ
❹ Screw
❺ Tension Regulator Plate
❸ Tension Regulator Band Assembly

Fig. 3-13.

3-13. DRUM ASSEMBLY, DEW SENSOR

1. Removal (See Fig. 3-14.)

1) Set the EJECT mode.
2) Remove the flexible board ❶ and the two connectors ❷.
3) Remove the guide guard assembly as described in section 3-2.
4) Remove the screw ❸, then remove the axle ground terminal ❹.
5) Remove the three screws ❺, then remove the drum assembly ❻ from the mechanism chassis.
6) Remove the connector ❿
7) Remove the screw ❼, then remove the dew sensor ❽.

Note:
- When removing the drum assembly ❻ from the mechanism chassis, take care not to cut the flexible board ❶ or the harness.
- Take care not to touch the head tip ❾.

2. Installation (See Fig. 3-14.)

1) Insert part ⓐ of the dew sensor ❽ into the notch ⓫ of the mechanism chassis, then secure it with the screw ❼.
2) Mount the connector ❿.
3) Clamp the harness ⓯ of the dew sensor ❽ with the reinforcing the claw ⓰ of the plate SS assembly (See Fig. A).
4) Insert the connector ❷ and the flexible board ❶ into the hole ⓬ of the mechanism chassis, align the drum assembly ❻ with the two dowels ⓭ and secure it with the three screws ❺.
5) Align the axle ground terminal ❹ with the two dowels ⓮ of the mechanism chassis and secure it with the screw ❸.
6) Mount the guide guard assembly as described in section 3-2.
7) Mount the two connectors ❷ and the flexible board ❶.

Note:
- Take care not to cut the flexible board ❶ or the harness ⓯.
- Take care not to touch the head tip ❾.
- After assembling, be sure to perform Tape Path Adjustment following instructions in section 4.

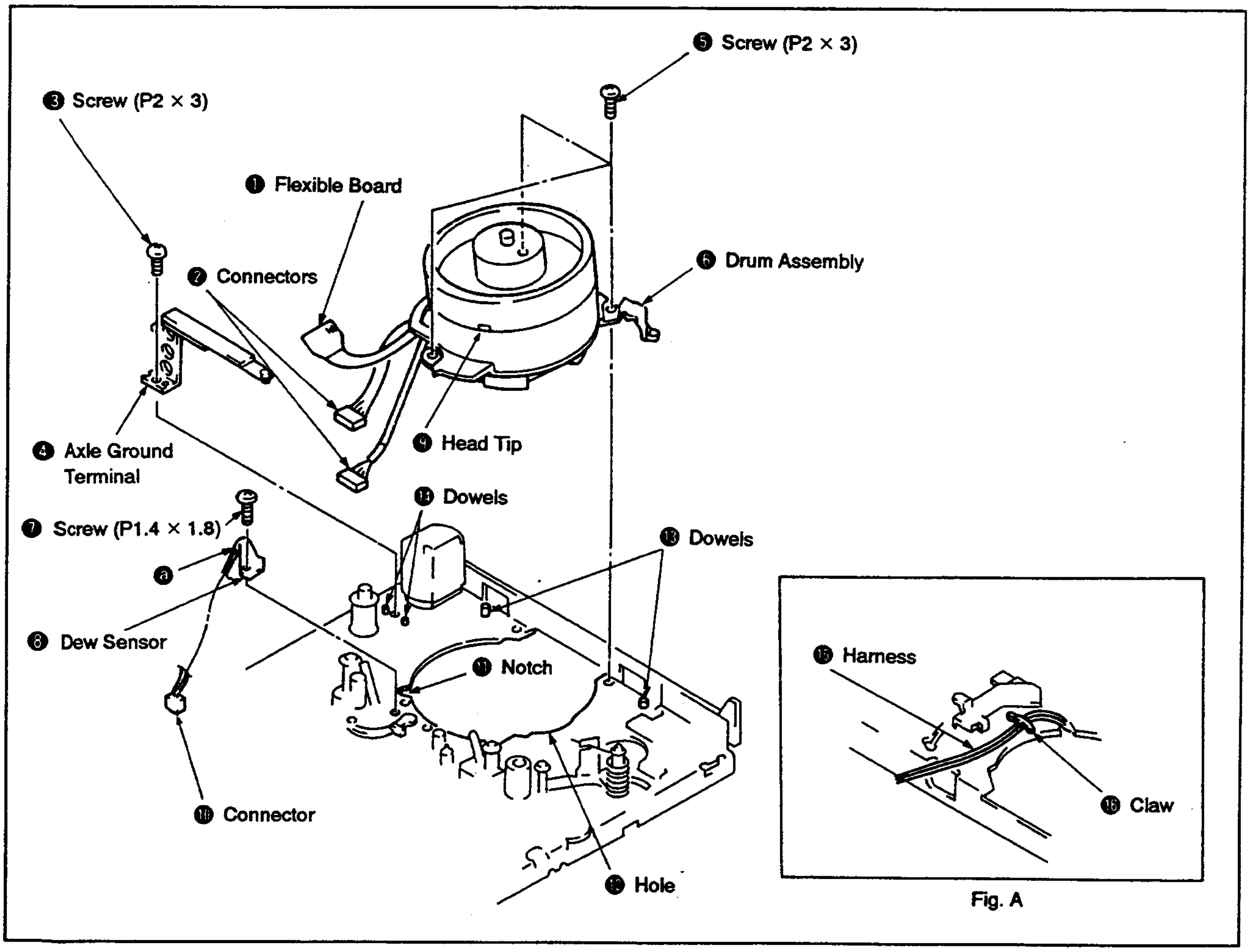

❺ Screw (P2 × 3)
❸ Screw (P2 × 3)
❶ Flexible Board
❷ Connectors
❻ Drum Assembly
❹ Axle Ground Terminal
❾ Head Tip
⓮ Dowels
❼ Screw (P1.4 × 1.8)
ⓐ
⓭ Dowels
❽ Dew Sensor
⓫ Notch
⓯ Harness
⓰ Claw
❿ Connector
⓬ Hole
Fig. A

Fig. 3-14.

3-14. EJECT LEVER, SWITCH LEVER ASSEMBLY, PINCH ROLLER SUB ARM ASSEMBLY

1. Removal (See Fig. 3-15.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Set the STOP mode.
3) Remove the claw ❶, then remove the eject lever ❷.
4) Remove the stopper washer ❸, then remove the switch lever assembly ❹.
5) Remove the pinch roller load spring ❺.
6) Remove the stopper washer ❻, then remove the pinch roller sub arm assembly ❼.

2. Installation (See Fig. 3-15.)

1) Grease the axle ❽ (See Fig. A).
2) Assemble by inserting ⓐ part of the pinch roller sub arm assembly ❼ into the slot ❾, then insert the pin ❿ into the loading lever assembly notch ⓫.
3) Secure with the stopper washer ❻.
4) Mount the pinch roller load spring ❺ by catching its ⓑ end between the claw ⓬ and the chassis side and its ⓒ end to the claw ⓬.
5) Apply half a drop of oil to the axle ⓭ (See Fig. B).
6) Align the groove ⓮ of the switch lever assembly ❹ with the mode detector switch protrusion ⓯, mount it on the axle ⓭, then insert the pin ⓰ into the drive gear (left) assembly ⓱ outer groove.
7) Secure with the stopper washer ❸.
8) Mount the eject lever ❷ and close the claw ❶.
9) Mount the DC motor (capstan motor) as described in section 3-3.

Note: When mounting the switch lever assembly ❹ onto the axle ⓭ with the tension regulator arm assembly installed, set the pin ⓰ to the arrow Ⓐ side of the switch lever assembly ❹.

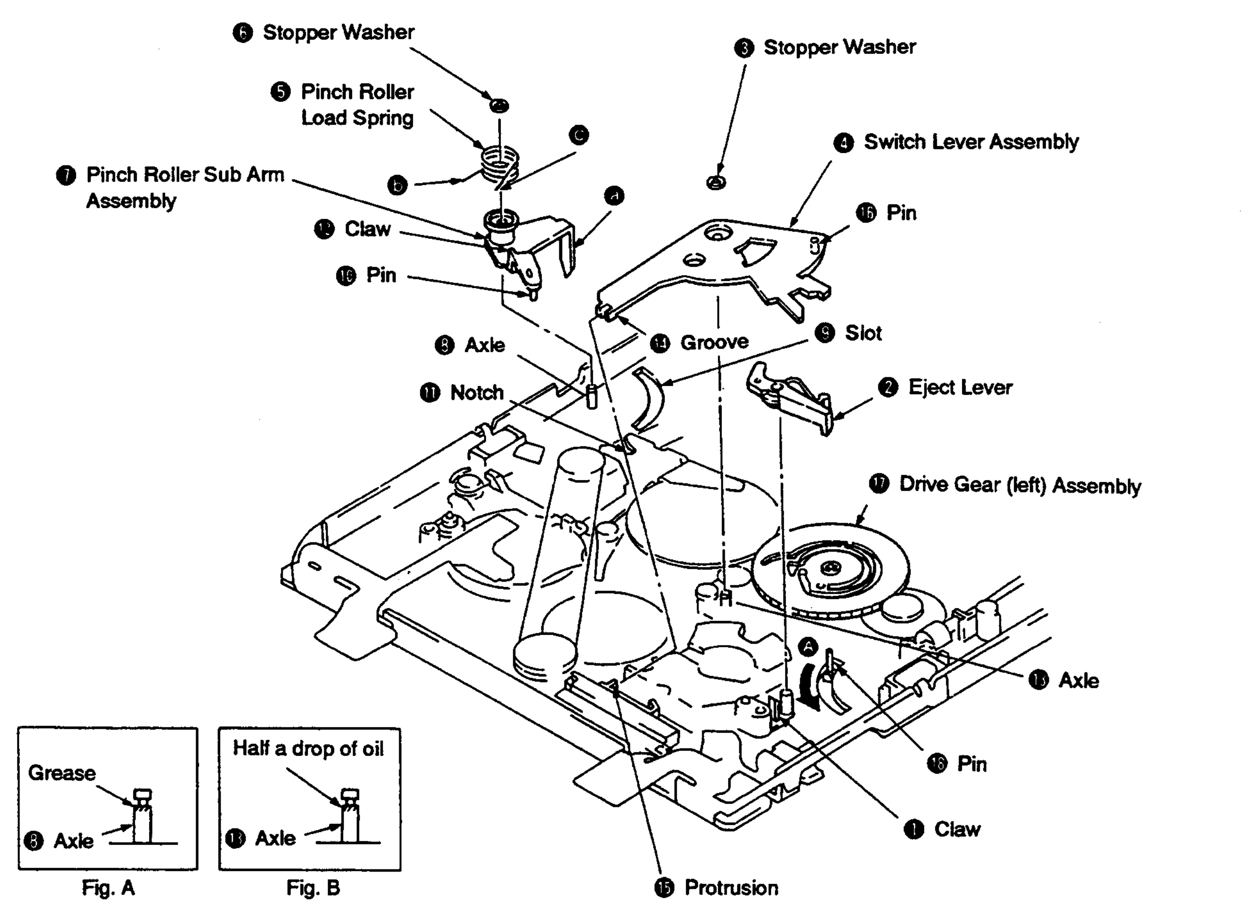

❻ Stopper Washer
❺ Pinch Roller Load Spring
❼ Pinch Roller Sub Arm Assembly
ⓒ
ⓑ
ⓐ
⓬ Claw
❿ Pin
❽ Axle
⓫ Notch
❸ Stopper Washer
❹ Switch Lever Assembly
⓰ Pin
⓮ Groove
❾ Slot
❷ Eject Lever
⓱ Drive Gear (left) Assembly
Ⓐ
⓭ Axle
⓰ Pin
❶ Claw
⓯ Protrusion
Grease
❽ Axle
Fig. A
Half a drop of oil
⓭ Axle
Fig. B

Fig. 3-15.

3-15. TIMING BELT (L) , RC GEAR ASSEMBLY, LOADING LEVER ASSEMBLY, TIMING BELT (S), CONNECTING GEAR ASSEMBLY

1. Removal (See Fig. 3-16.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the pinch roller sub arm assembly as described in section 3-14.
3) Set the STOP mode.
4) Remove the stopper washer ❶ , then remove the RC gear assembly ❷ from the axle ❹ with the timing belt (L) ❸ attached.
5) Remove the timing belt (L) ❸ from the idler pulley assembly ❺.
6) Remove the stopper washer ❻ and remove the loading lever assembly ❽ while pushing the claw ❼ in the direction of the arrow Ⓐ.
7) Turn the stopper ❾ approx. 90 ° in the direction of the arrow Ⓑ.
8) Remove the connecting gear assembly ⓫ from the axle ⓰ with the timing belt (S) ❿ attached.
9) Remove the timing belt (S) ❿ from the idler pulley assembly ❺.

Note: When removing the connecting gear ⓫ , take care not touch the flange section ⓑ.

2. Installation (See Fig. 3-16.)

1) Apply half a drop of oil to the axle ⓰ (See Fig. F).
2) Hook one end of the timing belt (S) ❿ onto the connecting gear assembly ⓫ and the other end onto gear ⓓ of the idler pulley assembly ❺. (Refer to the figure.)
3) Mount the connecting gear assembly ⓫ with the timing belt (S) ❿ attached to the axle ⓰.
4) Turn the stopper ❾ in the direction of the arrow Ⓒ as far as it will go.
5) Apply half a drop of oil to the axle ⓬ (See Fig. A).
6) Fit the loading lever assembly ❽ to the axle ⓬, secure the ⓐ part with the claw ❼ and place the pin ⓭ into the groove of the drive gear (right) assembly ⓮.
7) Install the stopper washer ❻.
8) Place the timing belt (L) ❸ around the gears of the RC gear assembly ❷ indicated in Fig. B, and its opposite side around the gear Ⓒ of the idler pulley assembly ❺. (See Fig. E.)
9) Mount the RC gear assembly ❷ onto the axle ❹ with the timing belt (L) ❸ attached, and engage it with the gear of the RK gear assembly ⓯.
10) Install the stopper washer ❶.
11) Grease parts of the loading lever assembly ❽ indicated in Fig. C.
12) Mount the pinch roller sub arm assembly as described in section 3-14.
13) Mount the DC motor (capstan motor) as described in section 3-3.

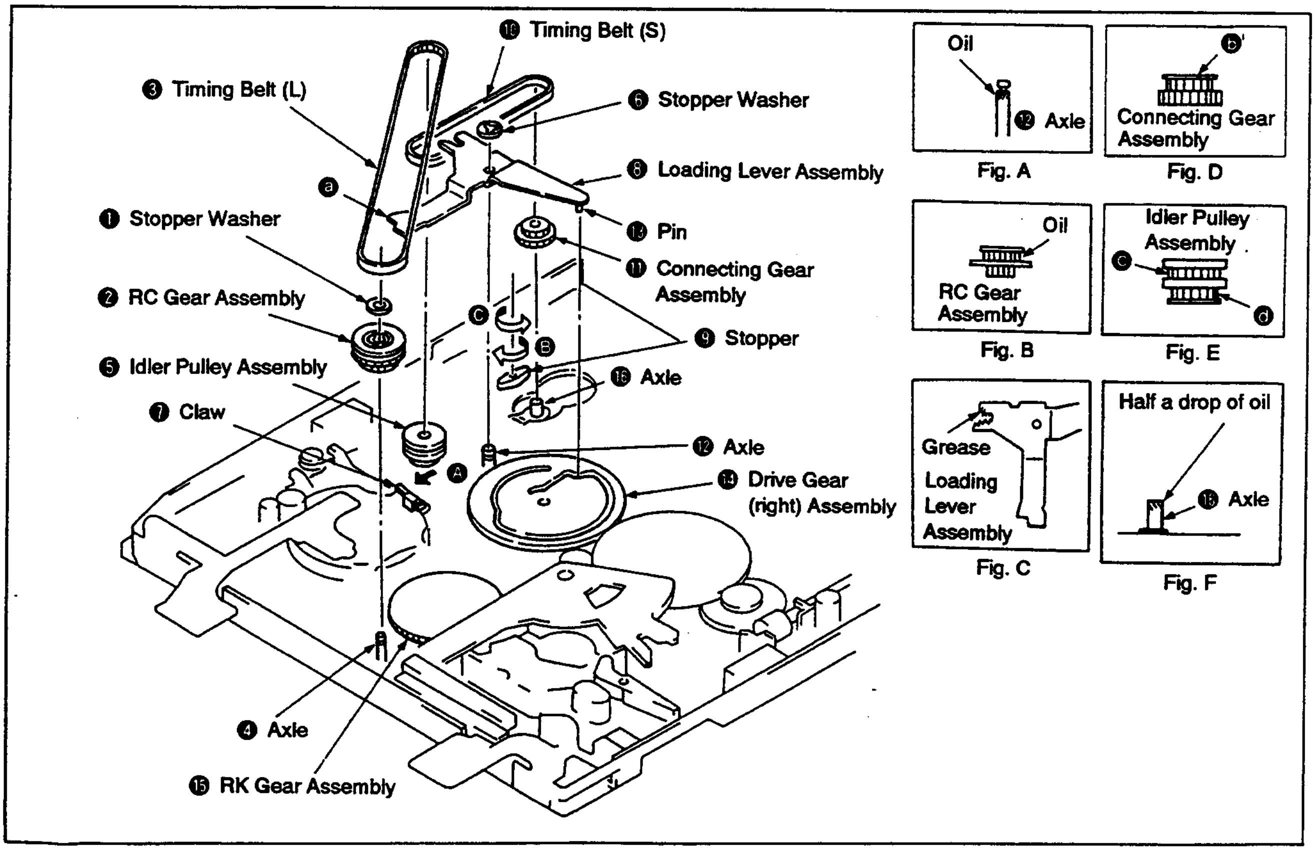

❿ Timing Belt (S)
❸ Timing Belt (L)
❻ Stopper Washer
❽ Loading Lever Assembly
ⓐ
❶ Stopper Washer
⓭ Pin
⓫ Connecting Gear Assembly
❷ RC Gear Assembly
Ⓒ
Ⓑ
❾ Stopper
❺ Idler Pulley Assembly
⓰ Axle
❼ Claw
Ⓐ
⓬ Axle
⓮ Drive Gear (right) Assembly
❹ Axle
⓯ RK Gear Assembly
Oil
⓬ Axle
Fig. A
ⓑ'
Connecting Gear Assembly
Fig. D
Oil
RC Gear Assembly
Fig. B
Idler Pulley Assembly
ⓒ
ⓓ
Fig. E
Grease
Loading Lever Assembly
Fig. C
Half a drop of oil
⓰ Axle
Fig. F

Fig. 3-16.

3-16. IDLER PULLEY, TS BRAKE ASSEMBLY, LB GEAR ASSEMBLY, RK GEAR ASSEMBLY

1. Removal (See Fig. 3-17.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the switch lever assembly as described in section 3-14.
3) Remove the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly described in section 3-15.
4) Set the STOP mode.
5) Remove the stopper washer ❶, then remove the idler pulley ❷.
6) Open the claw ❸, then remove the TS brake assembly ❹.
7) Remove the torsion coil spring (LB) ❺.
8) Remove the stopper washer ❻, then remove the LB gear assembly ❼.
9) Remove the RK gear assembly ❽.

Note: When removing the idler pulley ❷, take care not to touch the flange section ⓐ. (See Fig. C.)

2. Installation (See Fig. 3-17.)

1) Apply half a drop of oil to the axle ❾ (See Fig. A).
2) Mount the RK gear assembly ❽ onto the axle ❾, keeping it in horizontal position.
3) Apply half a drop of oil to the axle ❿ (See Fig. B).
4) Mount the LB gear assembly ❼ onto the axle ❿ and secure it with the stopper washer ❻.
5) Insert the torsion coil spring (LB) ❺ into the axle ⓫, then hook it to the mechanism chassis notch ⓬ and to the tab ⓭.
6) Mount the TS brake assembly ❹ and close the claw ❸.
7) Apply half a drop of oil to the axle ⓰ (See Fig. D).
8) Mount the idler pulley ❷ onto the axle ⓰, then secure it with the stopper washer ❶.
9) Mount the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly as described in section 3-15.
10) Mount the switch lever assembly as described in section 3-14.
11) Mount the DC motor (capstan motor) as described in section 3-3.

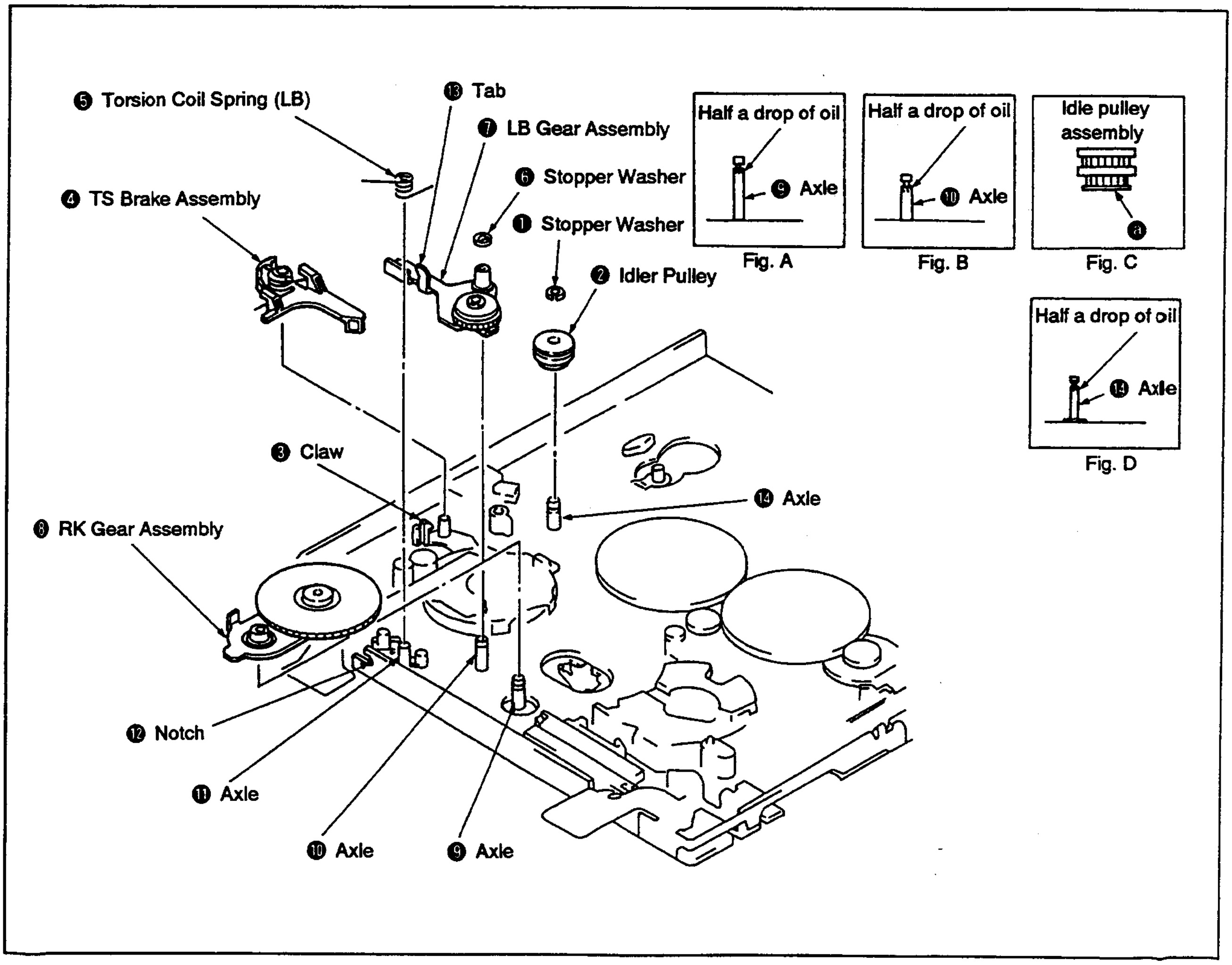

❺ Torsion Coil Spring (LB)
⓭ Tab
❼ LB Gear Assembly
❻ Stopper Washer
❶ Stopper Washer
❹ TS Brake Assembly
❷ Idler Pulley
Half a drop of oil
❾ Axle
Fig. A
Half a drop of oil
❿ Axle
Fig. B
Idle pulley assembly
ⓐ
Fig. C
Half a drop of oil
⓮ Axle
Fig. D
❸ Claw
⓮ Axle
❽ RK Gear Assembly
⓬ Notch
⓫ Axle
❿ Axle
❾ Axle

Fig. 3-17.

3-17. UL GEAR, UL BRAKE, UL ARM, LB PLATE SPRING

1. Removal (See Fig. 3-18.)

1) Remove the switch lever assembly as described in section 3-14.
2) Remove the stopper washer ❶, then remove the UL gear ❷.
3) Remove the UL arm ❸, the 1.6 mm-diameter poly washer ❹ and the LB plate spring ❺.
4) Remove the UL brake ❻.

2. Installation (See Fig. 3-18.)

1) Mount the UL brake ❻.
2) Apply half a drop of oil to the axle ❼ (See Fig. A).
3) Mount the LB plate spring ❺ to the axle ❼ as shown in Fig. B, then install the 1.6mm-diameter poly washer ❹.
4) Mount the UL arm ❸ to the axle ❼ so that the protrusion ❽ comes into the groove ❾ of the UL brake ❻.
5) Mount the UL gear ❷ to the axle ❼ and engage it with the gear of the drive gear (left) assembly ❿.
6) Install the stopper washer ❶.
7) Mount the switch lever assembly as described in section 3-14.

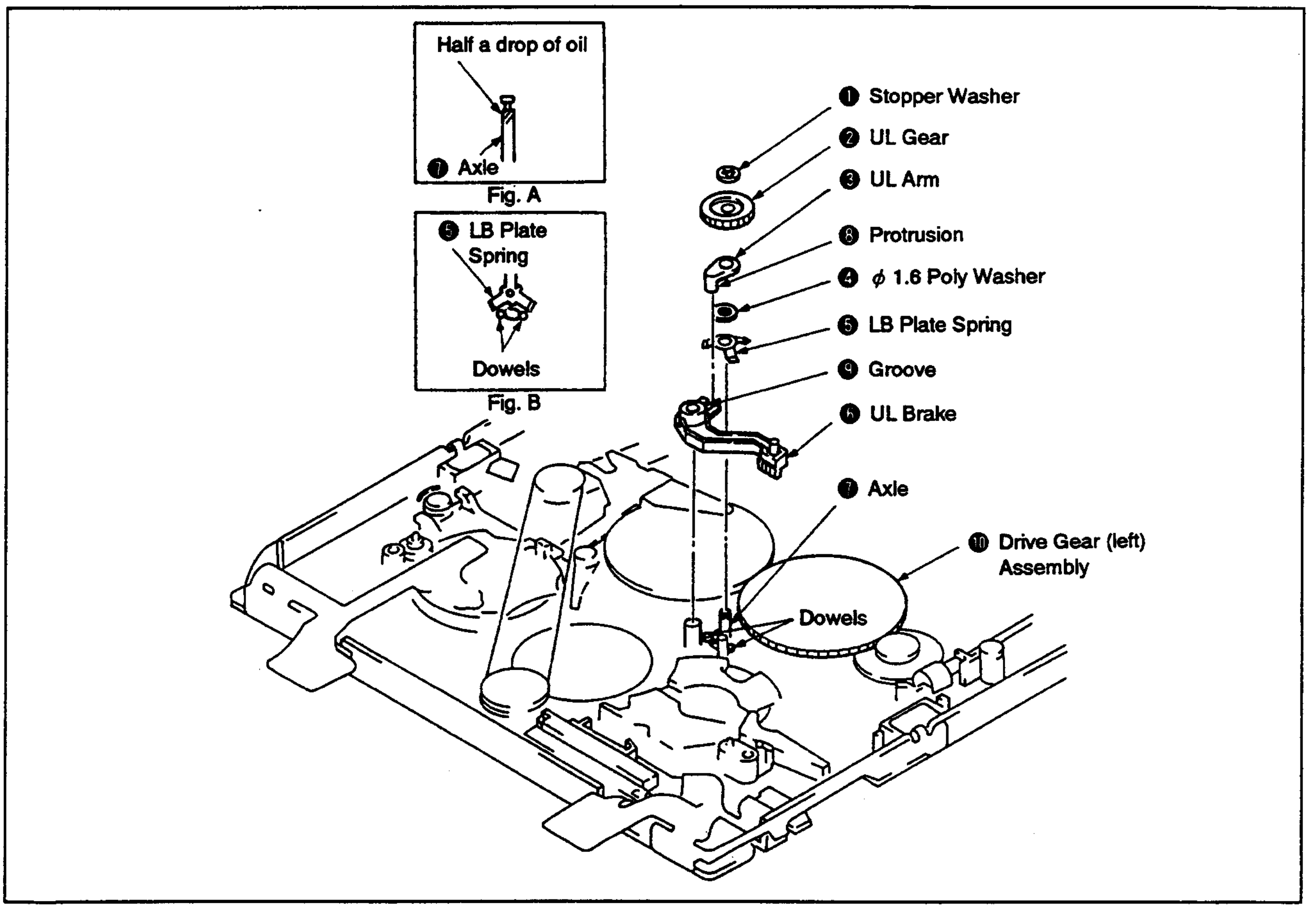

Half a drop of oil
❼ Axle
Fig. A
❺ LB Plate Spring
Dowels
Fig. B
❶ Stopper Washer
❷ UL Gear
❸ UL Arm
❽ Protrusion
❹ ϕ 1.6 Poly Washer
❺ LB Plate Spring
❾ Groove
❻ UL Brake
❼ Axle
❿ Drive Gear (left) Assembly
Dowels

Fig. 3-18.

3-18. COASTER (RIGHT) ASSEMBLY, DRIVE GEAR (RIGHT) ASSEMBLY

1. Removal (See Fig. 3-19.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the drum unit as described in section 3-13.
3) Remove the switch lever assembly as described in section 3-14.
4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
5) Set the STOP mode.
6) Remove the screw ❶, then remove the coaster plate spring ❷ and the coaster (right) assembly ❸.
7) Remove the two screws ❹, then remove the reinforcing plate TT ❺.
8) Remove the stopper washer 1.5 ❻, then remove the drive gear (right) assembly ❼.

2. Installation (See Fig. 3-19.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. F).
3) Grease pin ❾, axle ❿ and dowel ⓮ of the coaster (right) assembly ❸ (See Fig. D).
4) Mount by aligning the pin ❾ and the axle ❿ with the slot ⓫ of the mechanism chassis.
5) Move the brake release arm ⓬ in the direction of the arrow Ⓐ to put it out of the way.
6) Mount the drive gear (right) assembly ❼ to the axle ❽, and engage it with the drive gear (left) assembly ⓭ as shown in Fig. B.
7) Align the ⓐ part with the ⓑ part, and the hole ⓮ with the pin ❾ of the coaster (right) assembly ❸.
8) Install the stopper washer 1.5 ❻.
9) Mount by aligning the coaster plate spring ❷ with the axle ❿ of the coaster (right) assembly ❸ and pin ❾, then secure with the screw ❶.
10) Mount the reinforcing plate TT ❺ aligning it with the dowel ⓯, then tighten the two screws ❹ in the indicated order.
11) Grease the points indicated in Figs. C and E.
12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
13) Mount the switch lever assembly as described in section 3-14.
14) Mount the drum unit as described in section 3-13.
15) Mount the DC motor (capstan motor) as described in section 3-3.

Note:
- Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

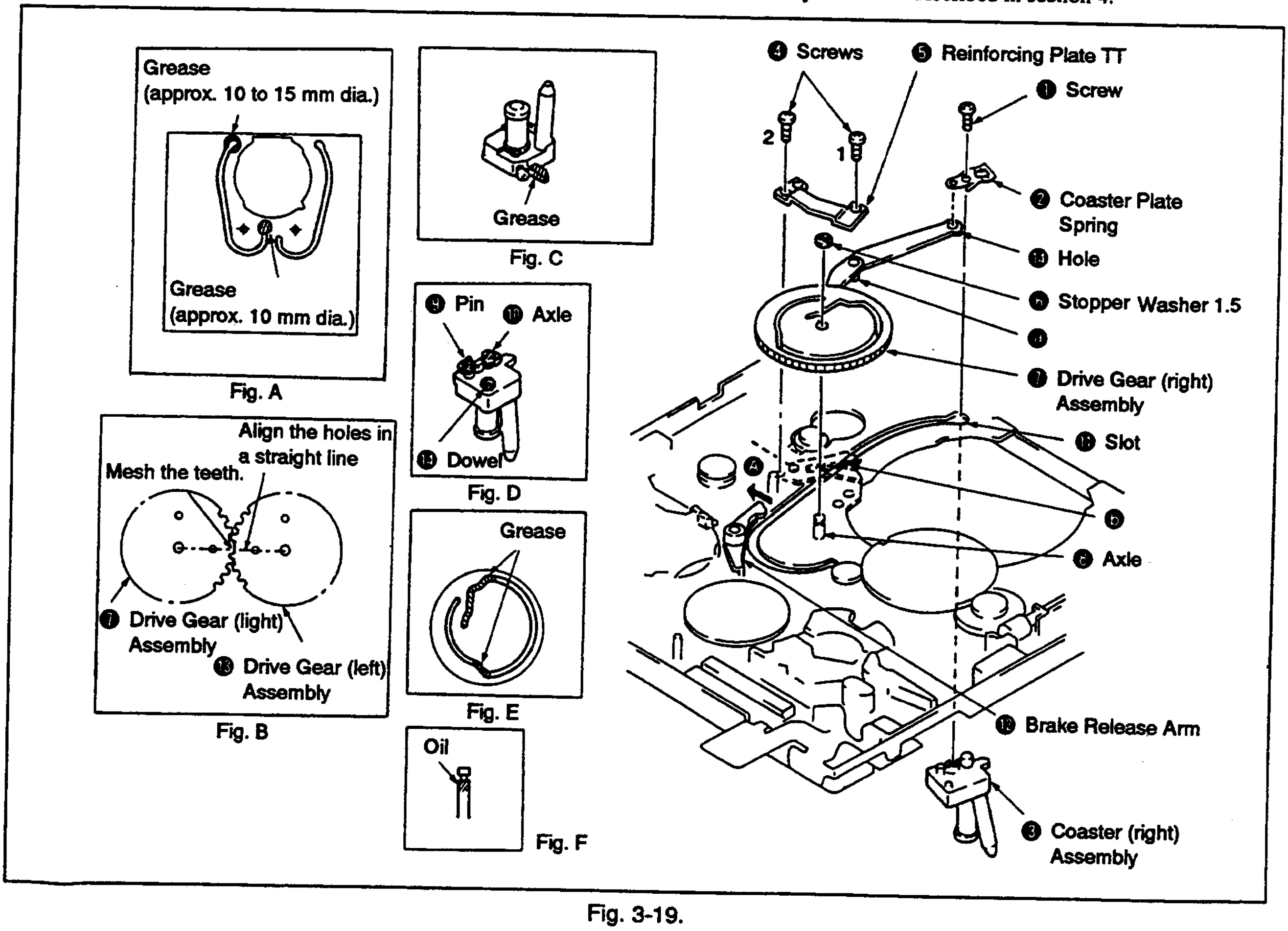

Grease
(approx. 10 to 15 mm dia.)
Grease
(approx. 10 mm dia.)
Align the holes in a straight line
Mesh the teeth.
❼ Drive Gear (light) Assembly
⓭ Drive Gear (left) Assembly
Grease
❾ Pin
❿ Axle
⓮ Dowel
Grease
Oil
❹ Screws
❺ Reinforcing Plate TT
❶ Screw
2
1
❷ Coaster Plate Spring
⓮ Hole
❻ Stopper Washer 1.5
ⓐ
❼ Drive Gear (right) Assembly
⓫ Slot
ⓑ
❽ Axle
Ⓐ
⓯
⓬ Brake Release Arm
❸ Coaster (right) Assembly

Fig. A

Fig. B

Fig. C

Fig. D

Fig. E

Fig. F

Fig. 3-19.

3-19. COASTER (LEFT) ASSEMBLY, DRIVE GEAR (LEFT) ASSEMBLY

1. Removal (See Fig. 3-20.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the drum assembly as described in section 3-13.
3) Remove the switch lever assembly and the pinch roller sub-arm assembly as described in section 3-14.
4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
5) Remove the coaster (right) assembly and the drive gear (right)assembly as described in section 3-18.
6) Remove the screw ❶, then remove the coaster plate spring ❷ and the coaster (left) assembly ❸.
7) Remove the two screws ❹, then remove the reinforcing plate SS assembly ❺.
8) Remove the stopper washer 1.5 ❻, then remove the drive gear (left) assembly ❼.

2. Installation (See Fig. 3-20.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. E).
3) Grease pin ❾, axle ❿ and dowel ⓯ of the coaster (left) assembly ❸ (See Fig. B).
4) Mount by aligning the pin ❾ and the axle ❿ with the slot ⓫ of the mechanism chassis.
5) Fit the drive gear (left) assembly ❼ to the axle ❽, and mount so that the gear engages with the wheel gear ⓬ and the UL gear ⓭.
6) Align the ⓐ part with the slot ⓫, and the hole ⓮ with the pin ❾ of the coaster (left) assembly ❸.
7) Install the stopper washer 1.5 ❻.
8) Mount by aligning the coaster plate spring ❷ with the axle ❿ and pin ❾ of the coaster (left) assembly ❸, then secure with the screw ❶.
9) Mount the reinforcing plate SS assembly ❺ aligning it with the dowel ⓯, then tighten the two screws ❹ in the indicated order.
10) Grease points indicated in Figs. C and D.
11) Mount the coaster (right) assembly and the drive gear (right)assembly as described in section 3-18.
12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
13) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
14) Mount the drum assembly as described in section 3-13.
15) Mount the DC motor (capstan motor) as described in section 3-3.

Note:
- Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

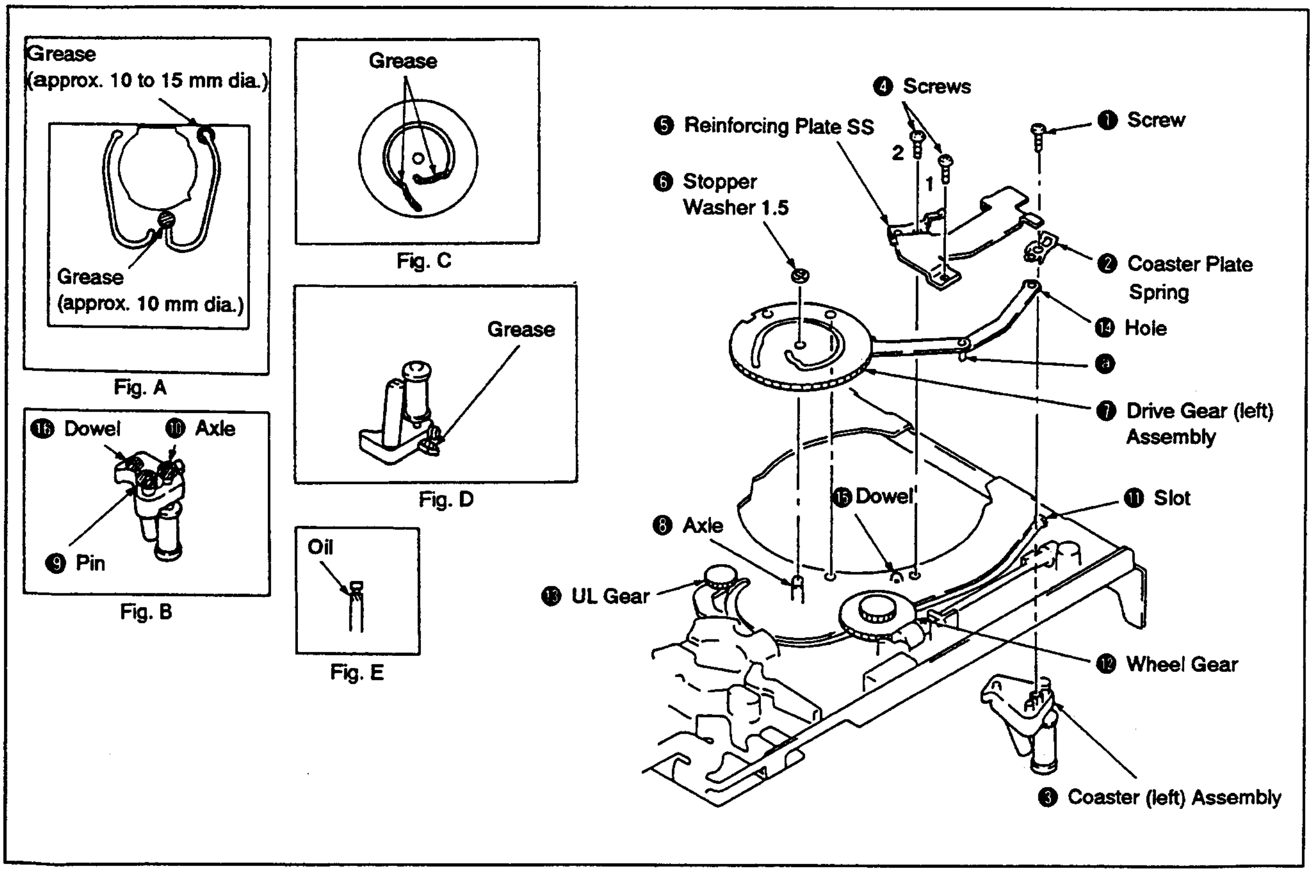

Grease
(approx. 10 to 15 mm dia.)
Grease
(approx. 10 mm dia.)
⓯ Dowel
❿ Axle
❾ Pin
Grease
Grease
Oil
❹ Screws
❺ Reinforcing Plate SS
2
1
❶ Screw
❻ Stopper Washer 1.5
❷ Coaster Plate Spring
⓮ Hole
ⓐ
❼ Drive Gear (left) Assembly
⓯ Dowel
⓫ Slot
❽ Axle
⓭ UL Gear
⓬ Wheel Gear
❸ Coaster (left) Assembly

Fig. A

Fig. B

Fig. C

Fig. D

Fig. E

Fig. 3-20.

3-20. LOADING MOTOR, BRAKE RELEASE ARM, WHEEL GEAR, WORM ASSEMBLY

1. Removal (See Fig. 3-21.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
3) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
4) Remove the drive gear (right) assembly as described in section 3-18.
5) Remove the drive gear (left) assembly as described in section 3-19.
6) Remove the two screws ❶, then remove the loading motor assembly ❷.
7) Remove the brake release arm ❸.
8) Remove the stopper washer ❹, then remove the wheel gear ❺.
9) Remove the worm assembly ❻ from the six claws ❼.

2. Installation (See Fig. 3-21.)

1) Mount the worm assembly ❻, matching it to the six claws ❼.
2) Grease the shaded parts of the worm assembly ❻ (five places) (see Fig A).
3) Apply half a drop of oil to the axle ❽ (See Fig. B).
4) Fit the wheel gear ❺ to the axle ❽ and engage it with the gear of the worm assembly ❻.
5) Mount the brake release arm ❸.
6) Grease the whole perimeter of the gear of the loading motor assembly ❷.
7) Align the loading motor assembly ❷ with the mechanism chassis and secure it with the two screws ❷.
8) Mount the drive gear (left) assembly as described in section 3-19.
9) Mount the drive gear (right) assembly as described in section 3-18.
10) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
11) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
12) Mount the DC motor (capstan motor) as described in section 3-3.

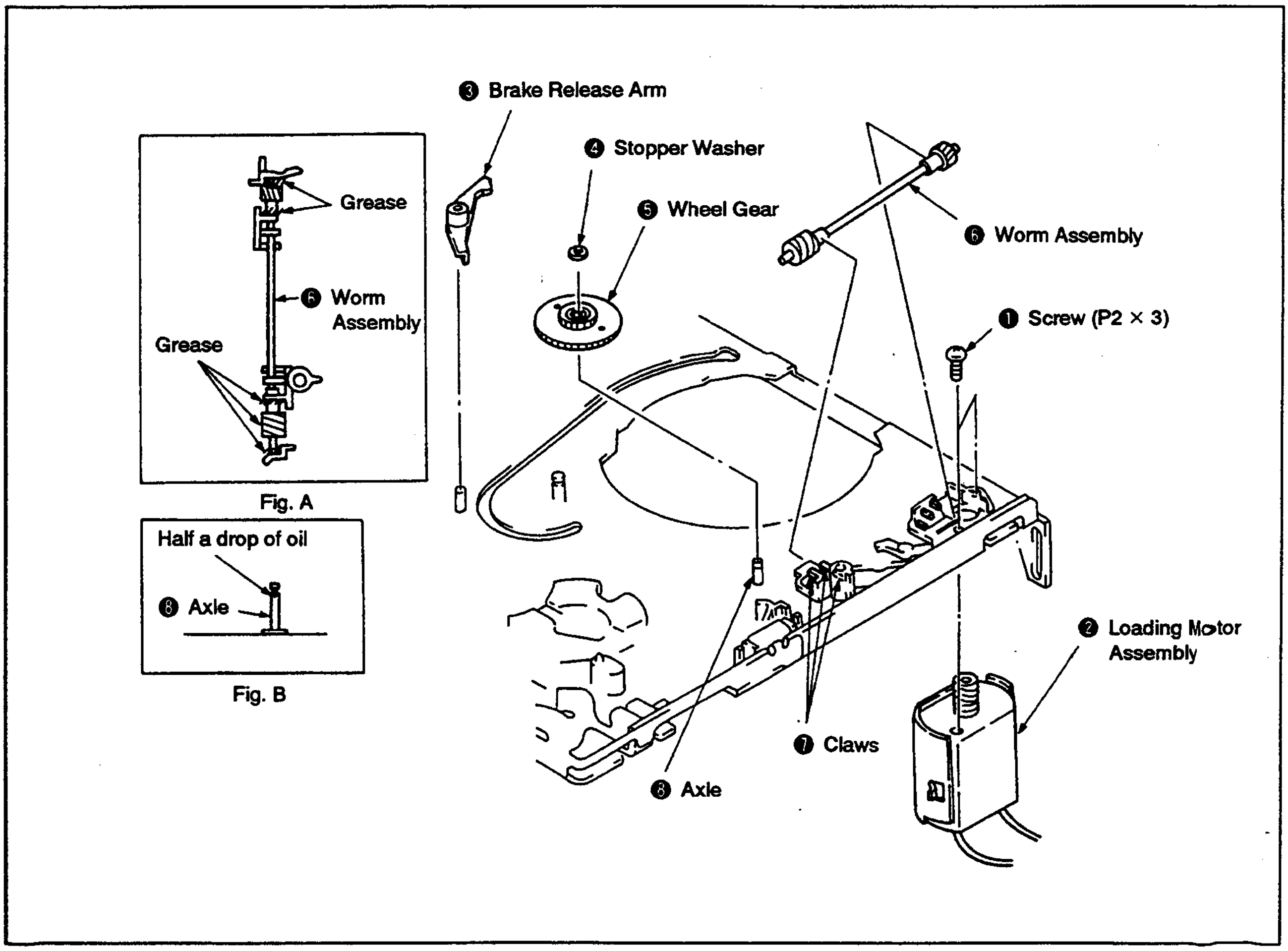

Grease
❻ Worm Assembly
Grease
Fig. A
Half a drop of oil
❽ Axle
Fig. B
❸ Brake Release Arm
❹ Stopper Washer
❺ Wheel Gear
❻ Worm Assembly
❶ Screw (P2 × 3)
❷ Loading Motor Assembly
❼ Claws
❽ Axle

Fig. 3-21.

3-21. ROTARY UPPER DRUM REPLACEMENT

1. Removal

- If possible, make a recording before removal.

1) Detach the six solderings ❾, then use a pair of tweezers or the like to confirm that the terminals passing through the board holes from below can move freely.
2) Remove the two screws ❶ (See Fig. 3-22).
3) Mount the jig ❹ (Ref. No. J-7) with the two supplied screws ❷, then screw the attached hexagon socket screws ❸ to the jig ❹. The rotary upper drum ❺ will move upward and come off (See Fig. 3-23).

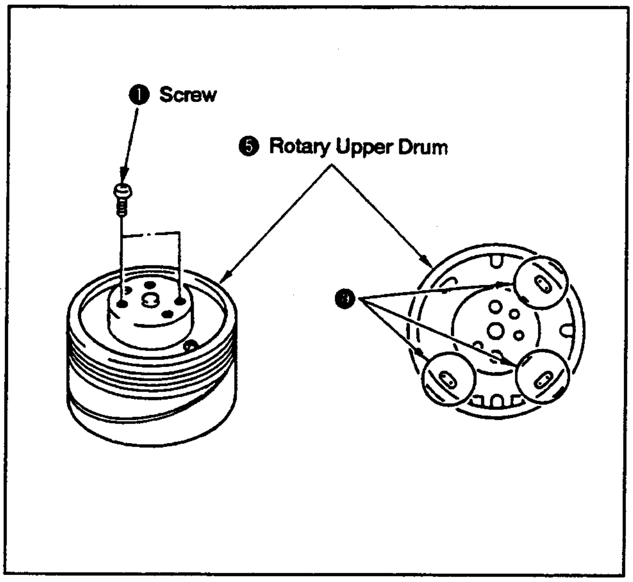


Fig. 3-22.

2. Installation

1) Wipe clean the flange surface and the rotary upper drum ❺ surface that makes contact with it, and confirm that they are free from dirt and scratches.
2) Insert the jig ❼ (Ref. No. J-7) into the drum positioning hole, then set the rotary upper drum ❺ by passing the jig through its positioning hole ❻.
   Note: Confirm that the terminals ❽ protrude slightly from the rotary upper drum board holes (See Fig. 3-24).
3) Remove the jig ❼ and push down the rotary upper drum ❺ gently by hand. If it does not go all the way down, secure it temporarily by tightening the two hexagon socket screws ❶ alternately.
4) Insert the jig ❼ into the positioning hole ❻ again and confirm that it goes in smoothly. If it does not, loosen the two screws ❶, repeat step 3 of the Removal paragraph and restart the setting procedure.
5) Tighten the screws ❶.
6) Solder the terminals ❽ (❾ in Fig. 3-22).
   Note: Take care that no solder flows below the board.

Note: After installing, be sure to perform tape path adjustment as described in section 4.

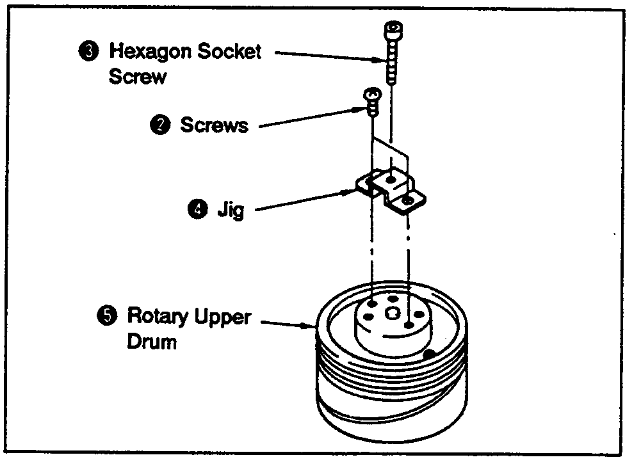


Fig. 3-23.

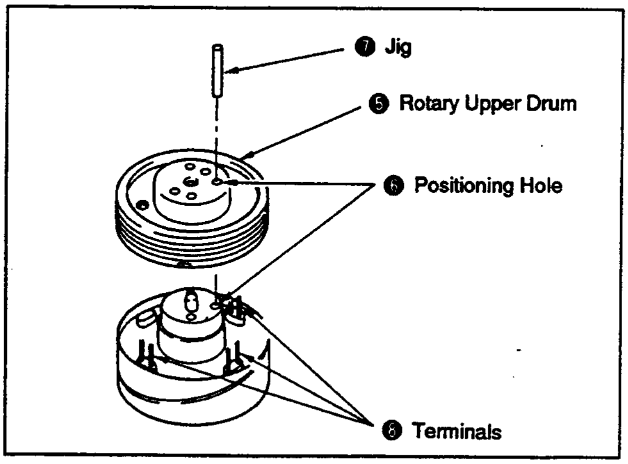


Fig. 3-24.

3-22. FWD BACK TENSION (See Fig. 3-25.)

1) Set the torque cassette (Ref. No. J-6).
2) Set the FWD mode and confirm that S reel table torque value is within 9 to 13 g•cm.
3) If the torque value does not meet the specification, adjust the adjust arm ❶.

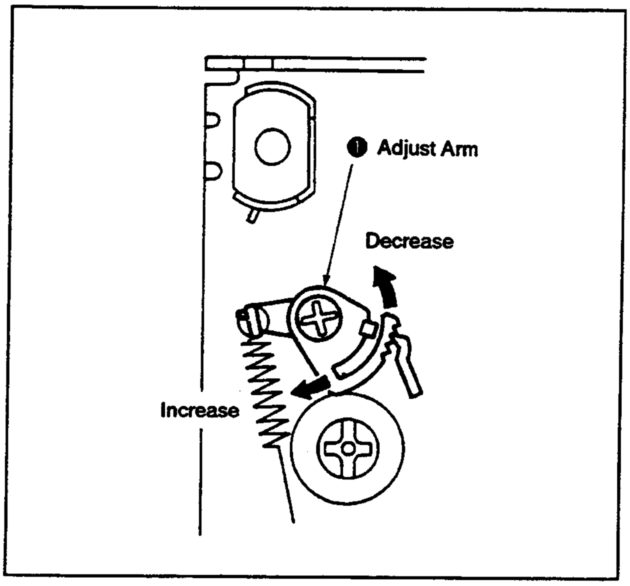


Fig. 3-25.

3-23. REEL TORQUE CHECK

1) Set the torque cassette.
2) Set the FWD mode and confirm that T reel table torque value is within 7 to 15 g•cm.
3) Set the REV mode and confirm that S reel table torque value is within 29 ± 6 g•cm.
4) Set the REV mode and confirm that T reel table torque value is within 13 to 25 g•cm.
5) If a torque value does not meet the specifications above, replace the corresponding reel table.

4. TAPE PATH ADJUSTMENT

[The Track Shift Mode]

In the 8 mm video system, instantaneous tape speed control is performed using four kinds of pilot signals, and high-precision tracking is achieved through the ATF (Automatic Track Finding) system. This makes a tracking control knob unnecessary and allows for precise tracing.

On the other hand, however, tape path adjustment presents some difficulties when the ATF system is used. Namely, since the ATF system will automatically compensate to some degree for head tracing errors, thorough adjustment is not possible.

This can be solved by setting the track shift mode for tracking fine adjustment. ATF will be compulsorily activated, shifting the tracking amount by a fixed amount (approx. 1/4) and thus making tracking fine adjustment easy. Furthermore, no track shift jigs are required.

4-1. TRACK SHIFT MODE SETTING

[Setting Procedure]

- Connect the TEST A and TEST B terminals to the COM terminal.

  Example:

  NTSC ········ GV-8

  PAL ·········· GV-8E

  Connect Pins ① and pin ③ of CN017 on the $\left\{\begin{array}{l}\text{SV-34 board (GV-8)}\\\text{SV-35 board (GV-8E)}\end{array}\right\}$ to pin ② of it. (See Fig. 4-1)

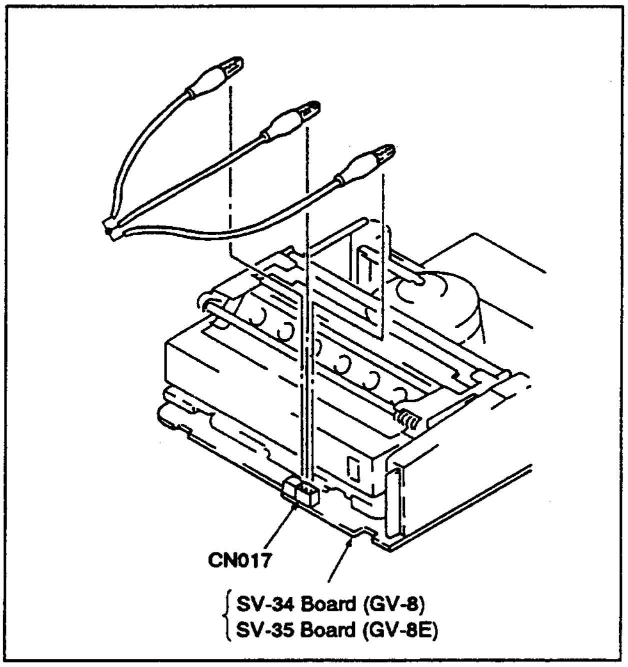
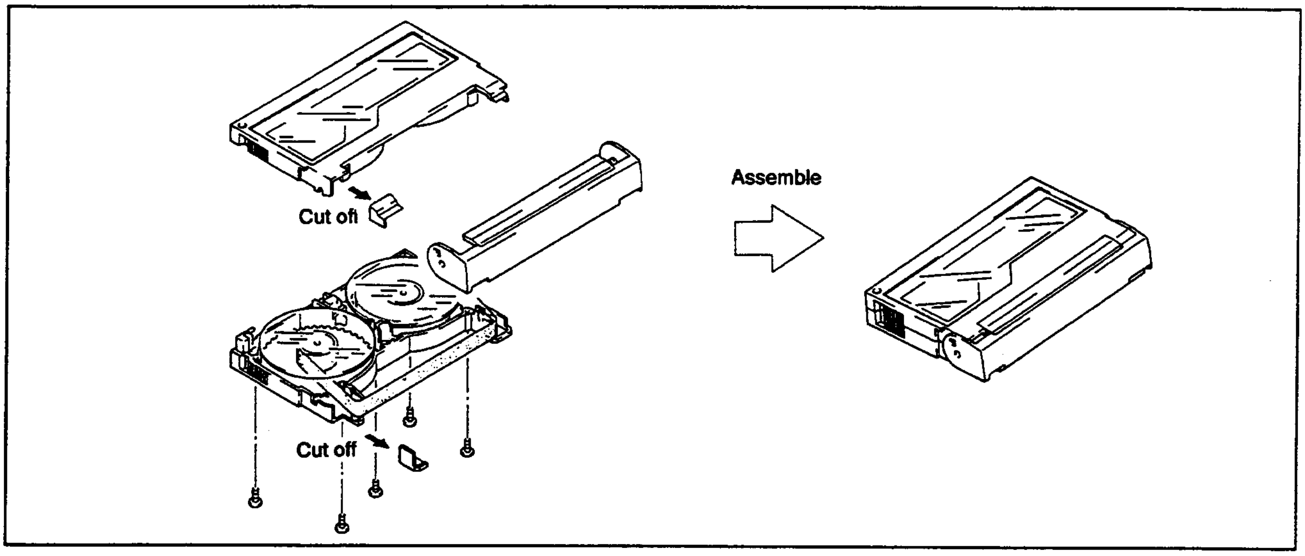


Fig. 4-1.

[Note on Adjustment of No.7 Guide (TG-7)]
The height adjustment screw for No.7 guide (TG-7) is located at some distance from the guide (refer to Fig. 4-2).
Therefore, when performing section 4-6. No.7 Guide (TG-7) Adjustment it is convenient to use the alignment tape for tracking (Ref. No. J-5), modified as follows, and perform adjustment in playback mode.


Cut ofi
Assemble
Cut off

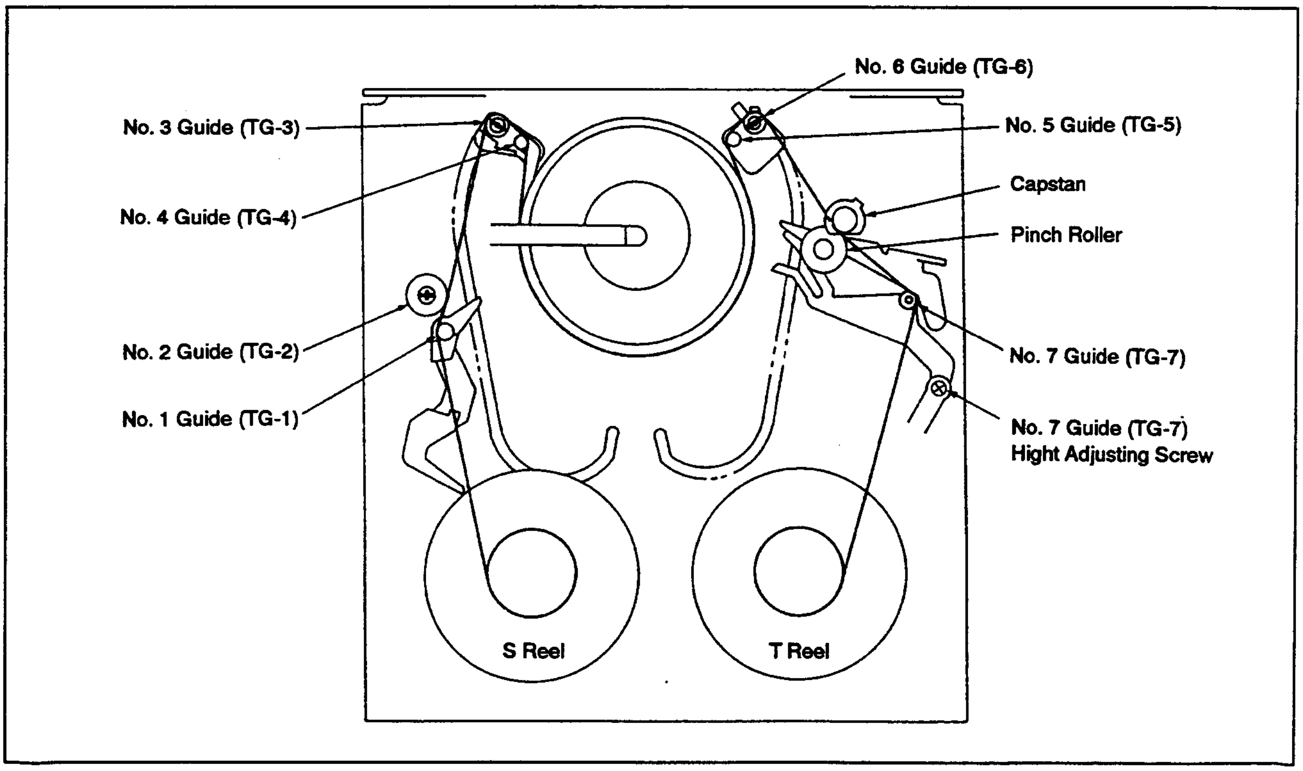

No. 6 Guide (TG-6)
No. 3 Guide (TG-3)
No. 5 Guide (TG-5)
Capstan
No. 4 Guide (TG-4)
Pinch Roller
No. 2 Guide (TG-2)
No. 7 Guide (TG-7)
No. 1 Guide (TG-1)
No. 7 Guide (TG-7)
Hight Adjusting Screw
S Reel
T Reel

Fig. 4-2.

4-2. PREPARATIONS FOR ADJUSTMENT

1) Clean tape path surfaces (tape guides, drum, capstan shaft, pinch roller) (See Fig. 4-2).
2) Connection of oscilloscope and output method of waveform.
CH 1: RF signal output of the drum head (V RF OUT)
Method for signal output:
Short-circuit the external trigger output (RF SW. P) and GND.

Example:
NTSC ····· GV-8
PAL ······· GV-8E
CH 1: Pin ③ (V RF OUT) of CN018 on the
{ SV-34 board (GV-8)
{ SV-35 board (GV-8E)
Method for signal output:
Short-circuit pin ① (GND) and pin ② (RF SW.P) of CN018 on the
{ SV-34 board (GV-8)
{ SV-35 board (GV-8E)

3) Play back the alignment tape for tracking adjustment (Ref. No. J-5).
4) Confirm that both the entrance and exit side RF waveforms of the oscilloscope are flat (See Fig. 4-4). If they are not, adjust as follows.

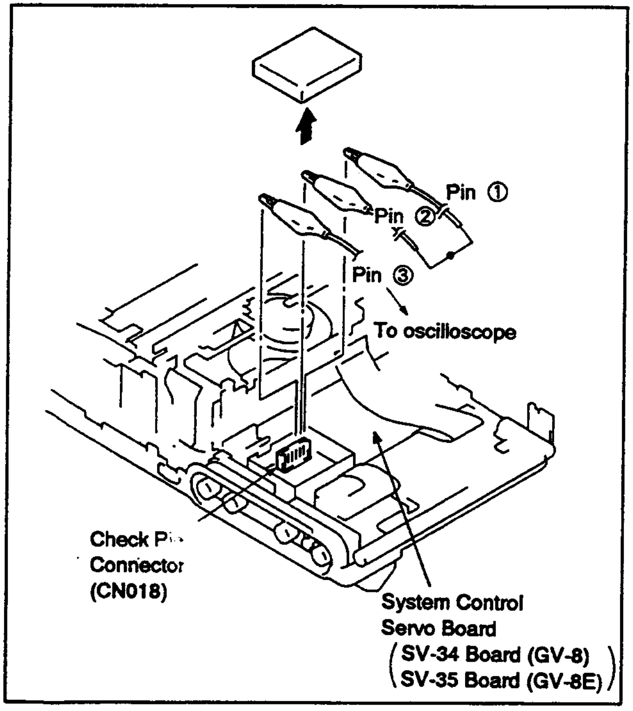

Pin ①
Pin ②
Pin ③
To oscilloscope
Check Pin Connector (CN018)
System Control Servo Board
(SV-34 Board (GV-8)
SV-35 Board (GV-8E))

Fig. 4-3.

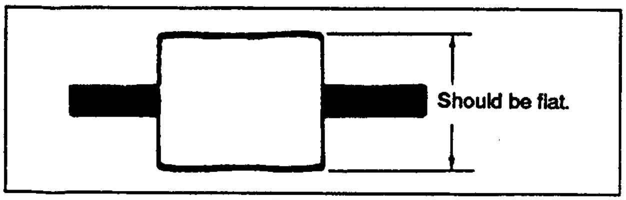

Should be flat.

Fig. 4-4.

4-3. TRACKING ADJUSTMENT (See Fig. 4-5.)

1) Play back the alignment tape for tracking adjustment.
2) Pass a hexagonal wrench, screwdriver (Ref. No. J-11) or the like through the hole ❶, loosen the lockscrew ❷ a little, then make the entrance side waveform flat by turning the No. 3 guide (TG-3) ❸.
3) Pass a hexagonal wrench, screwdriver or the like through the hole ❹, loosen the lockscrew ❺ a little, then make the exit side waveform flat by turning the No. 6 guide (TG-6) ❻.

Note: Take care not to loosen lockscrews too much, since guides come loose easily.

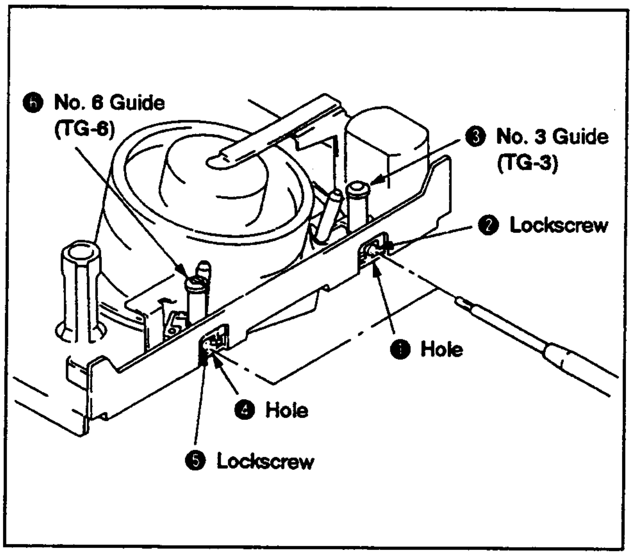

❻ No. 6 Guide (TG-6)
❸ No. 3 Guide (TG-3)
❷ Lockscrew
❶ Hole
❹ Hole
❺ Lockscrew

Fig. 4-5.

4-4. TRACKING FINE ADJUSTMENT (See Figs. 4-5. and 4-6.)

1) Play back the alignment tape for tracking adjustment and set the track shift mode.
2) Confirm whether the waveform is flat. If it is not, turn the No. 3 (TG-3) and No. 6 (TG-6) guides so that it becomes flat.
3) Fix the No. 3 guide ❸ by tightening its lockscrew ❷. Then confirm that the entrance side waveform has not changed.
4) Fix the No. 6 guide ❻ by tightening its lockscrew ❺. Then confirm that the exit side waveform has not changed.

Note: The set screws ❷ and ❺ should be tightened with a tightening torgue of approx. 200g•cm ± 10%.
If tightened too much, there is danger of damaging the thread.

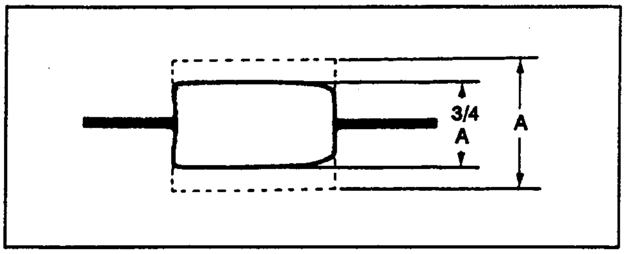


Fig. 4-6.

4-5. No. 2 GUIDE (TG-2) ADJUSTMENT

When the No. 2 guide has been turned or replaced, perform height presetting before this adjustment.

4-5-1. No. 2 Guide (TG-2) Height Presetting (See Fig. 4-7.)

1) Adjust the height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by rotating the TG-2 upper flange ❶.

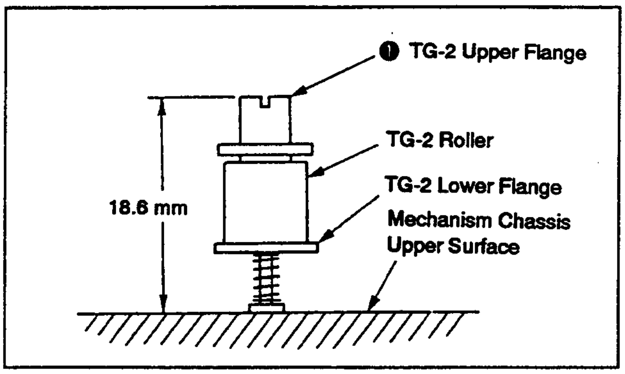


Fig. 4-7.

[Reference]
This U mechanism is equipped with four adjustable guides (TG-2, 3, 6 and 7) . To raise or lower the respective guide rotate the corresponding adjustment screw as shown below.

Guide	Guide adjustment	Rotating direction of adjustment screw
TG-2, 3, 6	Raise	Counterclockwise
	Lower	Clockwise
TG-7	Raise	Counterclockwise
	Lower	Clockwise

4-5-2. No. 2 Guide (TG-2) Adjustment (See Figs. 4-8. and 4-9.)

1) Play back a thin tape like the P6-120MP, etc. and set the REV mode.
2) Confirm that the tape is not bent at the lower flange ❷ of the No. 2 guide (TG-2) ❶ (See Fig. 4-8). If it is, turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ clockwise with a screwdriver, lowering it until the tape is straightened.
3) Play back the alignment tape for tracking adjustment.
4) Perform tracking adjustment and tracking fine adjustment as described in sections 4-3. and 4-4.
5) In the track shift mode, CUE/REV the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds.
6) If the waveform is not normal (See Fig. 4-9), turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ 90° counter-clockwise and repeat step 5.
   Repeat steps 5 and 6 until a normal waveform is obtained. Then, confirm that the tracking waveform has not changed. If it has, perform fine adjustment of entrance side tracking and repeat step 5.

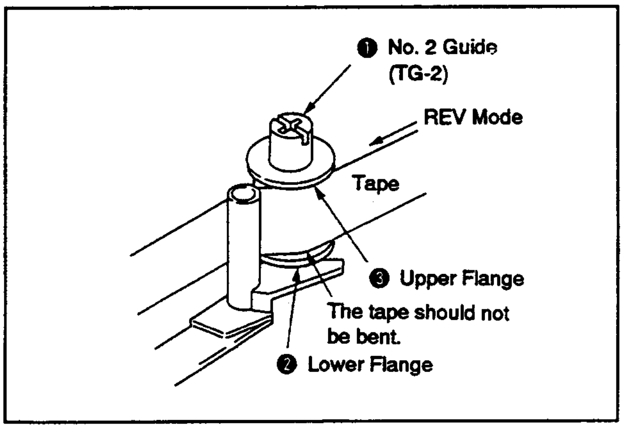

❶ No. 2 Guide (TG-2)
REV Mode
Tape
❸ Upper Flange
The tape should not be bent.
❷ Lower Flange

Fig. 4-8.

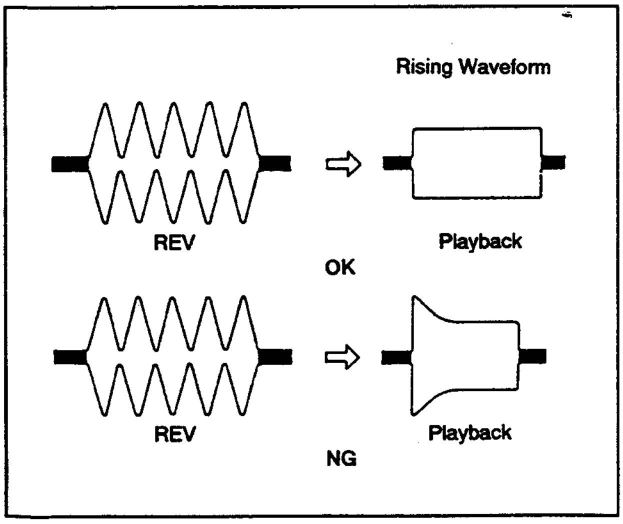

Rising Waveform
REV
Playback
OK
REV
Playback
NG

Fig. 4-9.

4-6. No. 7 GUIDE (TG-7) ADJUSTMENT (See Fig. 4-10.)

1) Play back the alignment tape for tracking adjustment and set the REV mode.
2) Confirm that the tape is not bent between the No. 6 guide (TG-6) ❶ and the capstan ❷ . If it is, turn the hight adjusting screw ❹ of the No. 7 guide (TG-7) ❸ until the tape is straightened.
3) Set the playback mode again and confirm that the tape is not bent between the capstan ❷ and the hight adjusting screw ❹ of the No. 7 guide (specification:0.5 mm or less) . If the tape is bent beyond the specification, turn the No. 7 guide (TG-7) ❸ until bending is within the specification (0.5 mm).
   If in the REV mode tape bending between the No. 6 guide (TG-6) ❶ and the capstan ❷ is 0.3 mm or less, adjustment can be considered completed.

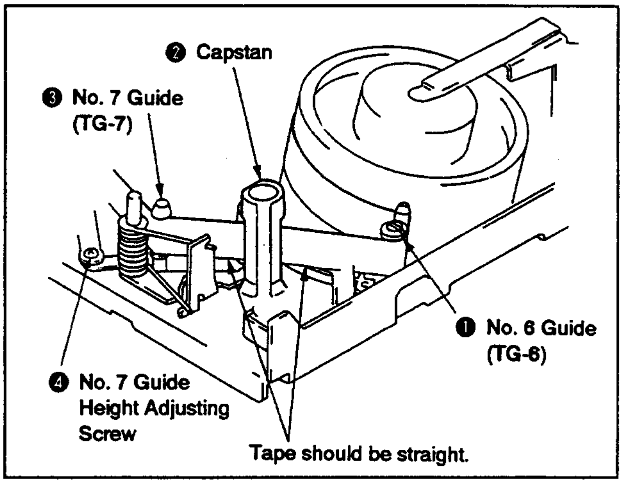

❷ Capstan
❸ No. 7 Guide (TG-7)
❶ No. 6 Guide (TG-6)
❹ No. 7 Guide Height Adjusting Screw
Tape should be straight.

Fig. 4-10.

4-7. CUE AND REV WAVEFORM CHECK (See Fig. 4-11.)

1) Play back the alignment tape for tracking adjustment and set the REV mode. Confirm that waveform peaks maintain a constant pitch of 5 seconds or more (See Fig. 4-11). In case pitch is not constant, perform section 4-4. Tracking Fine Adjustment and section 4-6. No. 7 Guide Adjustment.
2) Set the CUE mode. Confirm that waveform peaks still maintain a constant pitch of 5 seconds or more (See Fig. 4-11). Otherwise, perform section 4-4. Tracking Fine Adjustment.

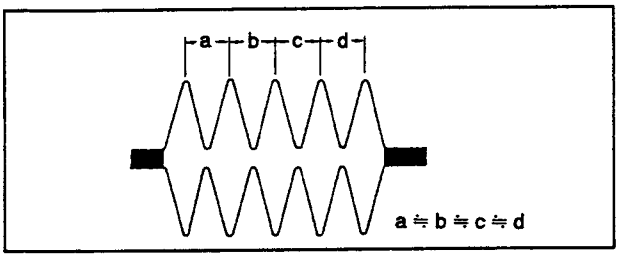


Fig. 4-11.

4-8. CHECK AFTER ADJUSTMENT

4-8-1. Tracking Check

1) Confirm that the amplitude of RF waveform is reduced to approx. 3/4 when the track shift mode is set (See Fig. 4-12).
2) Then, confirm that the minimum amplitude value (EMIN) is 65% of the maximum value (EMAX) or larger (See Fig. 4-13).
3) Confirm that no large fluctuations occur on the waveform (See Fig. 4-14).

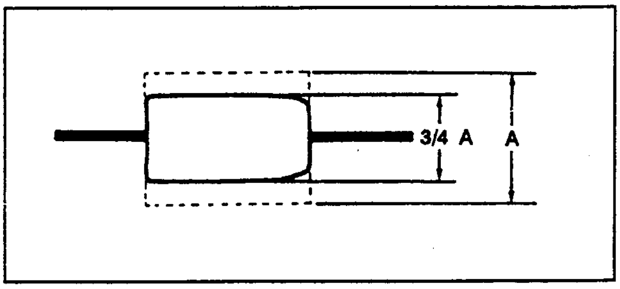
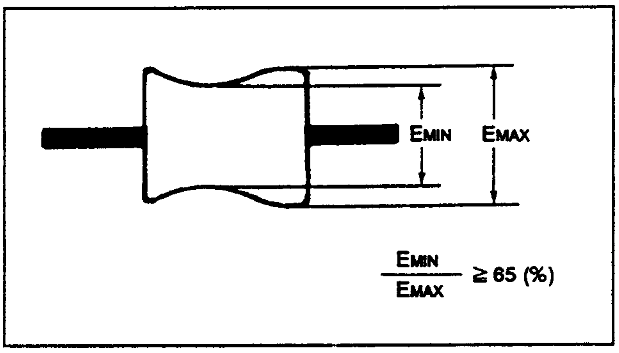
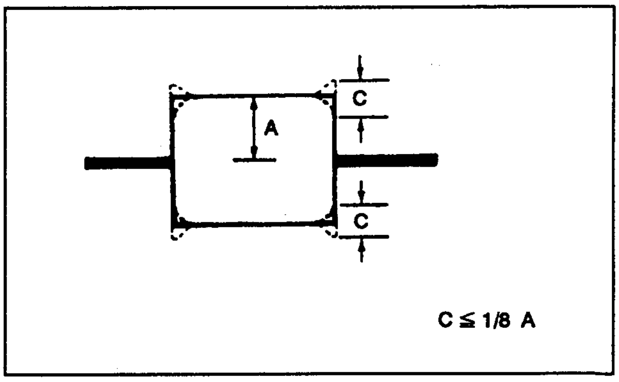


Fig. 4-12.



$\frac{E_{MIN}}{E_{MAX}} \geqq 65\ (\%)$

Fig. 4-13.



C ≦ 1/8 A

Fig. 4-14.

4-8-2. Rising Check (See Fig. 4-15.)

1) Play back the alignment tape for tracking adjustment.
2) Cancel the track shift mode.
3) Eject the tape, then load it again.
4) Set the playback mode and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller (See Fig. 4-15).
5) CUE/REV and FF/REW the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller.
6) Repeat steps 3) to 5) once more.

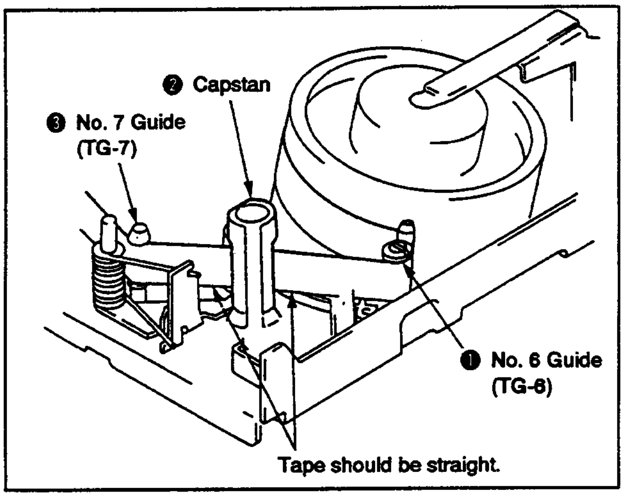

❷ Capstan
❸ No. 7 Guide
(TG-7)
❶ No. 6 Guide
(TG-6)
Tape should be straight.

Fig. 4-15.

4-8-3. Tape Path Check (See Fig. 4-16.)

1) Play back a thin tape like the P6-120MP (NTSC) or P5-90MP (PAL), etc. and confirm that no tape rising occurs, and that curling is less than 0.3 mm, at the lower flange of the No. 2 guide, the upper flange of the No. 3 guide, the upper flange of the No. 6 guide and the No. 7 guide upper and lower flanges.
2) Confirm that no tape rising occurs and that curling is less than 0.3 mm at the flanges of all guide when pressing the FF button in the playback mode to set the CUE mode, or the REW button to set the REV mode.

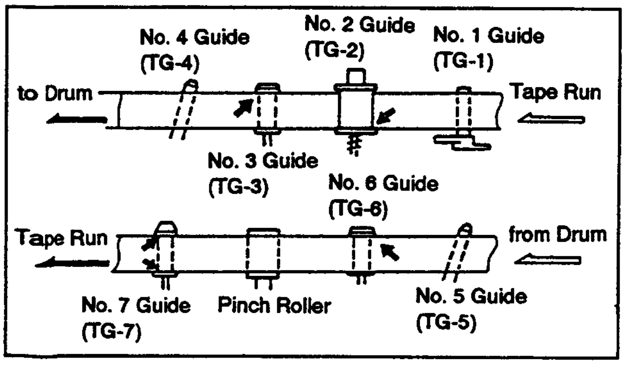

No. 4 Guide
(TG-4)
No. 2 Guide
(TG-2)
No. 1 Guide
(TG-1)
to Drum
Tape Run
No. 3 Guide
(TG-3)
No. 6 Guide
(TG-6)
Tape Run
from Drum
No. 7 Guide
(TG-7)
Pinch Roller
No. 5 Guide
(TG-5)

Fig. 4-16.